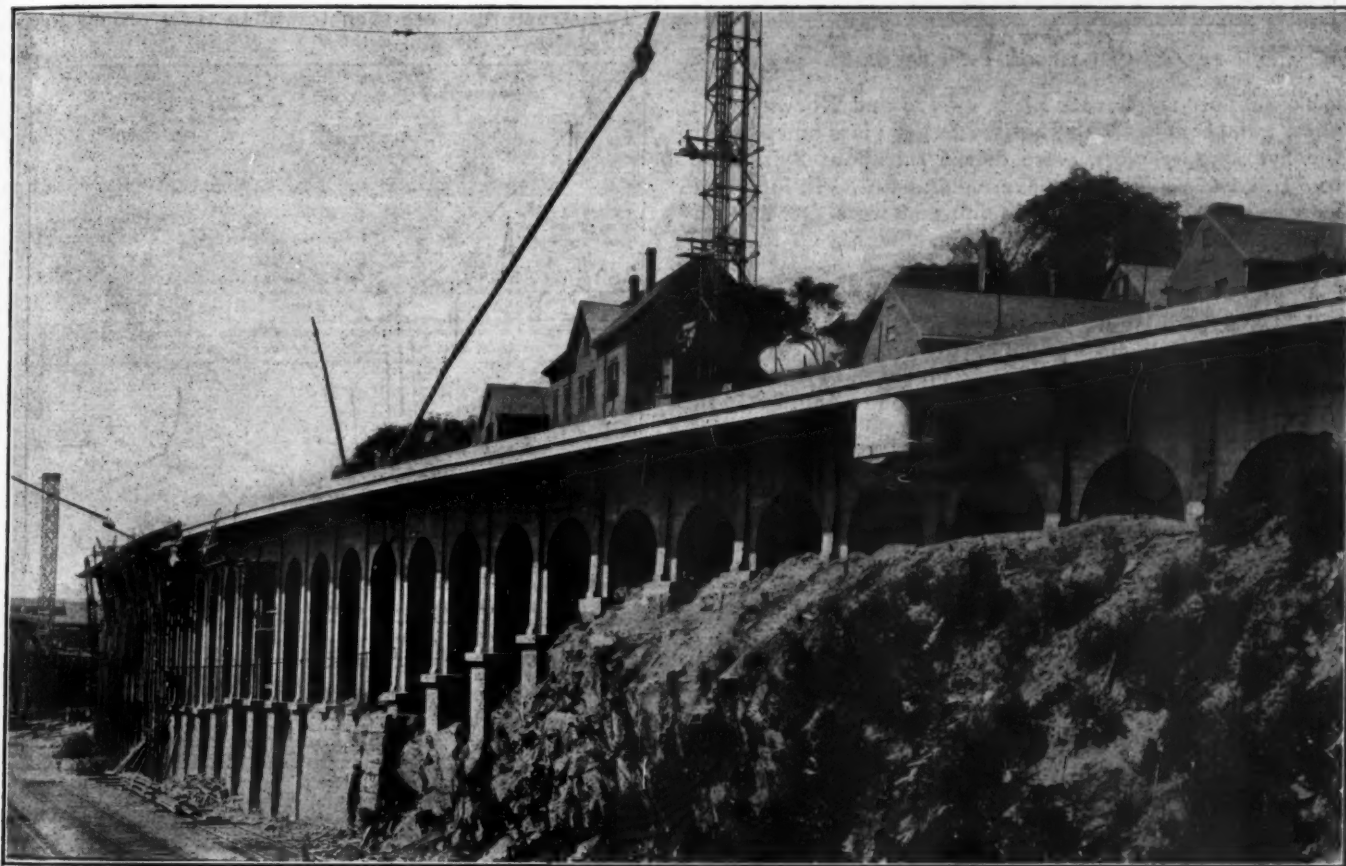


# Municipal Journal

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ONE END OF PORTLAND-SOUTH PORTLAND VIADUCT.

## THE PORTLAND VIADUCT

Three-Quarters of a Mile Long—Embankment, Concrete Arches and Plate Girder Spans—Novel Construction of Pier Foundations—Expansion Joints with Suspended Spans—Construction Methods.

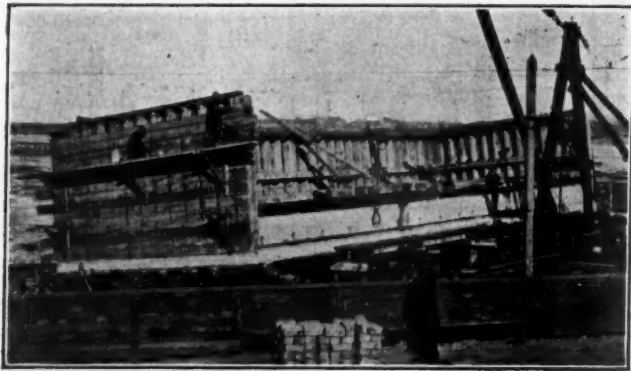
By W. B. CONANT.

A concrete viaduct and bridge, estimated to cost about \$1,000,000, is in process of construction to connect the cities of Portland and South Portland, Maine. The work is in charge of the county commissioners of Cumberland county.

The whole structure is built in six sections, as follows: Section 1 is a fill, partly in tide water, raised to 34 ft. above mean low water, 875 ft. long and 62 ft. wide at the top. Sec. 2 consists of a fill to 12 ft. above low water, 275 ft. long, with a superstructure of reinforced concrete forming a viaduct supported on concrete piers and foundations resting on piles. Sec. 3 includes ten piers and seven steel plate girder spans, two steel truss spans and a Scherzer rolling-lift draw, the total length of the section being 1,009 ft. Sec. 4 consists of a rein-

forced concrete viaduct 700 ft. long, spanning railroad tracks and a street. Sec. 5 is a viaduct branching from the previous section and extending 320 ft. to a street at a lower level. Sec. 6 is a viaduct which also branches from Sec. 4 and leads in the opposite direction from the first viaduct in the form of an arc 700 ft. long, part of the width being cut into the slope of a hill and the rest supported on reinforced concrete walls and piers.

The construction of the piers in the area covered by tide water, which is included in a contract awarded to Holbrook, Cabot & Rollins Corporation, of Boston, and the concrete superstructure, which is under contract to T. Stuart & Son Co., of Newton, Mass., present some particularly interesting features, aside from the extent and impressive character of the whole structure.



BUILDING CAISSON ON GRILLAGE.

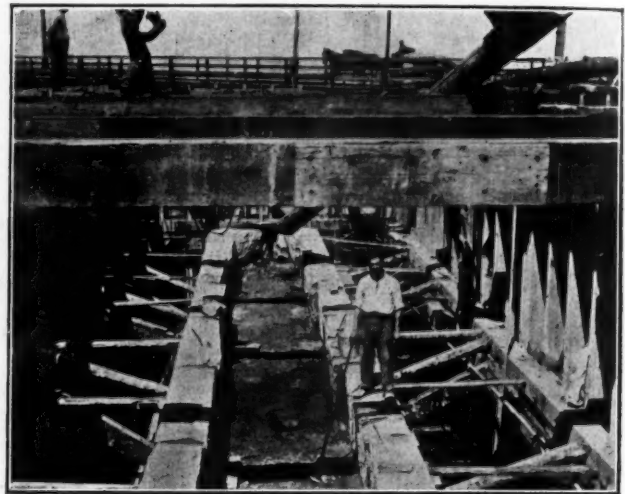
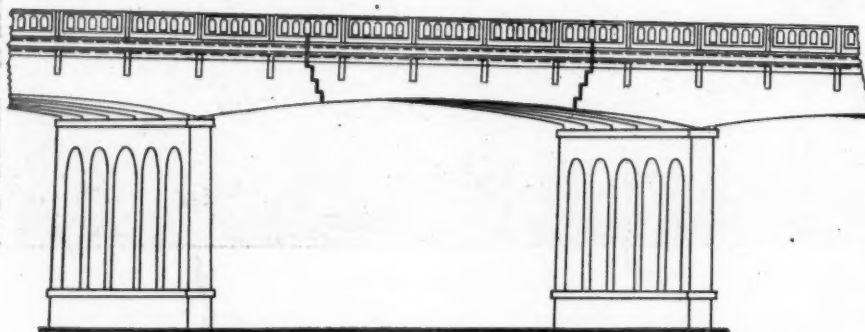
To support the harbor piers, spruce and Norway pine piles, numbering 363 for the two larger piers and 210 for the five smaller piers, were driven on about 2 ft. 6 in. to 3 ft. centers. The piles averaged about 38 ft. long and were 6 in. in diameter at the tip, and were driven to a penetration of not more than 1 in. under a 10 ft. drop of a 2,000-lb. hammer.

Upon each group of piles, sawed to the required grade, was placed a concrete platform constructed in the form of a scow 4 ft. deep, six compartments long and two wide, with sides and transverse walls 12 in. thick. For the two larger piers the area of the platform is 88 ft. 4 in. by 32 ft. 8 in., and for the five smaller piers 84 ft. 8 in. by 25 ft. 8 in. The floor is a 6-in. slab on 3-in. tongued and grooved planking of Southern pine. A 6-in. by 12-in. Southern pine footing piece runs along the base outside the walls on all four sides, and in it are fastened steel hook bolts at 4-ft. intervals, by which the platform is attached to its caisson.

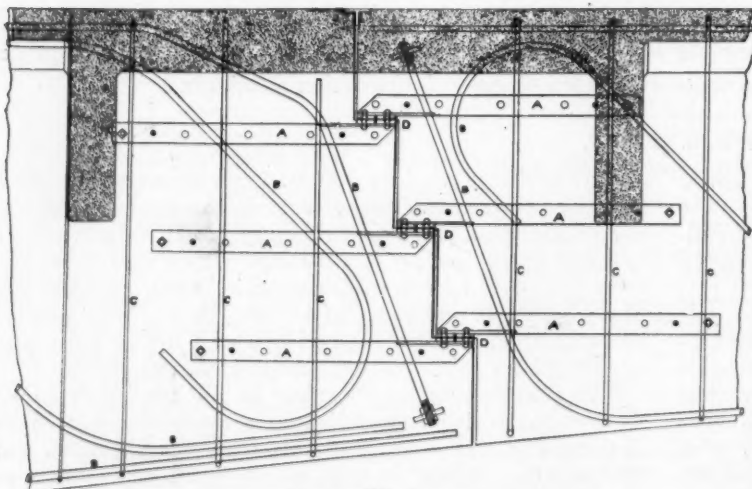
To cast these boat-like structures, wooden forms were set up on an inclined launchway and the structure, when hard, launched into the water at high tide and grounded on a soft mud bank.

The caisson sides were built up around the concrete walls, in two or three sections in height, according to the depth of water in which the pier stands. The caissons consisted of 12 by 12 in. corner posts, 6 by 12 in. sides, 4 in. planking, and 12 by 12 in. horizontal inside walings, midway of the height and at the top of each section. Eye-bolts were attached to the hook-bolts in the footing timbers with turnbuckles, which secured the platform firmly to the caisson.

The structures were then towed to their proper loca-

BUILDING PIER IN COFFERDAM.  
Placing Concrete Between Granite Face Stone.

ELEVATION OF ARCH, SECTION 4, SHOWING EXPANSION JOINTS.



EXPANSION JOINT.

Cantilever at Left, Suspended Link Span at Right.

AA—Angle iron tie-backs. BB—Reinforcing rods. CC— $\frac{3}{4}$ " stirrups. DD—Bearing plates.

tion over the respective pile groupings and there allowed to settle with the receding tide. Then each was filled with concrete 5 ft. 6 in. high to an offset made in each face of 2 ft. 6 in.; then 5 ft. 6 in. to a second offset of 2 ft. 6 in., and from this level the structure was built up to a level 2 ft. below low water, from which point the pier, consisting of a concrete core with ashlar facing, was constructed to grade 25 ft. 6 in. to carry the steel work of the bridge.

The caissons were released from the platforms by unhooking the eyebolts from the hooks, after loosening the turnbuckles. The 3 in. hard pine floor of the platform is the only woodwork remaining permanently on the piles.

The plan of construction was worked out by J. W. Rollins, of the Holbrook, Cabot & Rollins Corporation, and was believed to involve the minimum of permanent wood structure utilized in any concrete pier constructed to date.

The concrete used in the construction of the harbor foundations and piers is composed of 1 part Alpha Portland cement,  $2\frac{1}{2}$  parts fine aggregate (sand and gravel up to  $\frac{3}{4}$  in. in diam.) and 5 parts coarse aggregates (gravel up to  $2\frac{1}{2}$  in. in diam.). These materials were brought by motor trucks about  $1\frac{1}{2}$  miles from banks of the Consolidated Broken Stone & Gravel Co., in South Portland, where they were thoroughly washed, and were dumped on scows from a wharf built for the purpose at the waterside about 100 ft. from one end of the bridge. The scows were floated alongside a mixer-elevator erected on another scow.



The aggregates were transferred from one scow to the other by a grab-bucket dredge, and the gravel washed a second time with water dipped from the harbor in the dredge bucket. The materials were raised to the mixer, located on a platform above the scow about 30 ft. high, and the concrete was elevated to a hopper whence it was chuted into the caisson through a 2-joint metal chute.

The superstructure included in sections 2 to 6 consists of cross bents and cross walls supporting longitudinal beams and slabs, with fiber conduits, manholes, trolley-pole bases, granolithic sidewalks and sidewalk brackets, wood paving, and concrete railings. A retaining wall at the harbor edge was included in Sec. 5. There are 99 piers, with spans of parabolic camber 56 ft. to 69 ft. in length. The main bridge is 60 ft. wide, consisting of a 44 ft. roadway and two 8 ft. sidewalks; the descending viaduct connection is 40 ft. wide, with 6 ft. walks, and the other viaduct has a 44 ft. roadway with 8 ft. walks.

In section 2, expansion joints occur in slabs and in the middle of every third post; in Sec. 3 they occur in the slab only. In Sec. 4 they pass through the longitudinal girders and slabs and form link spans the two ends of which are supported on the cantilever ends of fixed spans, on a 3-seated bearing. At the end of each fixed span, at the level of each seat, angle-iron tie-backs are placed, to which are riveted faced steel bearing plates. On the ends of the link spans, similar angle iron tie-backs are built into the concrete with horizontal steel rocker bearing plates attached which rest on the bearing plates of the fixed spans. There are thus two sets of bearing plates in each of the six girders of each span. Each of the three seats forms an offset in the beams of  $8\frac{5}{8}$  in. The expansion joints are  $5\frac{1}{8}$  in. wide and are filled with a corrugated zinc device originated by James J. Murphy, superintendent for T. Stuart & Son Co., of Newton, Mass., constructing engineers of this division. The device is composed of a sheet of zinc, on one face of which are soldered vertically V-shaped channels made of



BUILDING FORMS.

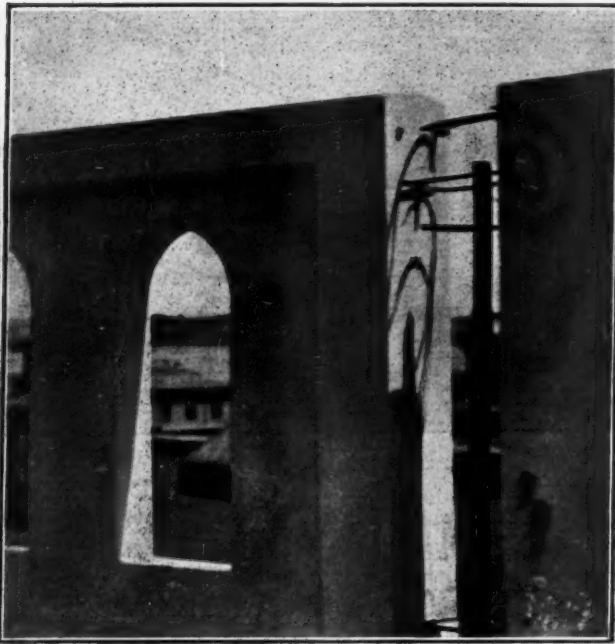
sheet zinc, the depth of the channel being  $\frac{3}{4}$  in. to fill the width of the joint. These corrugated sheets are placed in the perpendicular portions of the joints, and on the horizontal portion plain sheets of zinc are laid, which are bent upward or downward 3 in. so as to enclose the corrugated section at its top and bottom edges.

Under each of the sidewalks are laid sixteen lines of  $3\frac{1}{2}$  in. Orangebury fibre conduit to contain the electric wires. Brackets and balustrades for the sidewalks were all pre-cast. Rods in the brackets extend 4 ft. into the bracket and 5 ft. into the slab. Two  $1\frac{1}{8}$  in. corrugated lateral reinforcing rods 28 ft. long and extending 2 ft. beyond the center of the roadway, link into hooked rods in the side of each of the brackets, which are spaced on 8 ft. centers. Balustrade sections are in general 10 ft. long and are joined by reinforcing hoops encircling a  $1\frac{1}{8}$  in. corrugated rod set upright in the slab, the space being filled flush with concrete.

The granolithic sidewalk, which is of 1 part cement,



GENERAL VIEW OF PIERS OF PORTLAND-SOUTH PORTLAND VIADUCT.



METHOD OF CONNECTING BALUSTRADE SECTIONS.

$\frac{3}{4}$  sand and  $\frac{3}{4}$  stone dust, is wire-meshed into the floor slab. Manhole forms are built in a field carpenter shop, the rods shaped and placed, the forms erected and the concrete poured at the same operation as the girders supporting them.

The concrete for the foundations of the viaducts (which run with extended footings about 12 ft. below ground level to hardpan) and for the pier superstructure consists of a 1:2:4 mix, with Lehigh Portland cement, sand and coarse, medium or fine aggregates, according to specification.

Cement called for throughout was a slow setting, high-grade Portland, capable of developing a strength in neat briquets at 24 hours' age of 175 lbs., at 7 days 500 lbs., and 28 days 600 lbs. per sq. in.; and in mortar 1:3, 200 lbs. at 7 days and 275 lbs. at 28 days.

Sand was specified as a fine aggregate that will pass through a  $\frac{1}{4}$  in. ring and not more than 6 per cent through a 100-mesh sieve. Stone from  $\frac{1}{4}$  in. up to  $\frac{3}{4}$  in. was designated "fine;"  $\frac{3}{4}$  in. to  $1\frac{1}{2}$  in. as "medium," and  $1\frac{1}{2}$  in. to  $2\frac{1}{2}$  in. as "coarse."

The concrete mix specified for the pier foundations was 1:2½ sand : 5 coarse stone, and for the portion enclosed with masonry 1:2½ sand : 5 medium. It was required that materials be placed dry in the mixer and turned long enough to thoroughly mix before water was applied, when the whole was turned at least 1 min.

Forms for the entire superstructure were built on a low platform on the ground, of  $\frac{7}{8}$  in. Southern hard pine boards, planed both sides, and Southern pine joists. Nails were set deep, and all forms thoroughly oiled. More than 1,000,000 ft. of lumber were used. The wood-working was done in a field sawmill which contained an American bandsaw, a 16 in. American planer, swinging cut-off saw, rip saw, boring machine and grindstone, all driven by a 15-h.p. and a 10-h.p. General Electric motor on 550 volts direct current obtained from the lighting company.

Two one-yard Smith mixers, with steel towers 150 ft. and 120 ft. high, were used by the Stuart Company. One was originally located at the foot of a declivity below a street, with an easy ramp leading from the latter. A wire rope operated on a drum was used to haul loaded wagons up backwards. A 35-h.p. Ames boiler and 25-h.p. Lambert engine operating the mixer and elevator were located

on the low level at the foot of the tower. The other elevator and mixer were operated by a 35-h.p. engine with 8 ft. platform adjacent to a street on the lower level. Aggregates deposited on the platform dropped into an industrial car which was hauled by wire cable 50 ft. up an inclined track and automatically dumped into the mixer at the base of the tower. Electric bells were installed to connect the elevator operator with the man on the tower regulating the flow of concrete. Two wooden resting towers for chutes, each 95 ft. high, which were bolted together prone on the ground and raised by means of a derrick, supported the chutes, which, from two positions for each equipment, distributed concrete over the whole area of the work.

Cement was brought by railroad to a sidetrack about 150 ft. from the concrete shed, which had a capacity of 10,000 bags. A gang of 6 men with an industrial car could transfer 6 cars of cement in one day.

The cost of the bridge and viaducts is paid by the county of Cumberland and 40 per cent assessed on the Portland Terminal Co. and 10 per cent on the Portland & Cape Elizabeth Street Railway Co., with a maximum limit of \$400,000 and \$100,000, respectively.

The contracts were divided as follows: To Holbrook, Cabot & Rollins Corporation, Boston, for filling Sec. 1, foundations and fill of Sec. 2, 10 piers of Sec. 3, foundation of Sec. 4 and construction of a temporary bridge and draw, \$346,500; to T. Stuart & Son Co., Newton, Mass., for the superstructure of Secs. 2 and 4, the whole of Secs. 5 and 6, and the floor, paving and concrete balustrade of Sec. 3, \$250,000; to the Phoenix Bridge Co., Phoenixville, Pa., for the steel structure of Sec. 3, \$139,650.

The engineers who designed the bridge are J. R. Worcester & Co., Boston, Mass.

#### PUBLIC EDUCATION ON WATER WASTE.

The chief clerk of the water works of Columbus, Ohio, Prentiss R. Crall, is acting upon the idea that if the consumer be educated to the real facts as to metering water, a great many "nerve-racking and time-consuming kicks might be eliminated" and both consumer and water department benefit thereby. He has therefore prepared and had published for distribution a circular in the form of a single sheet which contains information aimed to promote this education, the information given being classified under the heads "Sources of Wastage," "Result of Wastage," "Detection of Wastage," "Prevention of Wastage," and "How to Read the Meter"; also a schedule of water rates. Mr. Crall informs us that he has just begun the use of this, and does not yet know what results will be obtained from it. He has had large photographs of the circular made and hung in the corridor of the office, underneath which is a receptacle containing copies of the same and asking consumers to help themselves. Each complainant and each new applicant will receive one. He does not believe in a promiscuous distribution of them, as many tenants do not pay water rent, but he wishes to get them as far as possible into the hands of the individuals who are responsible for the payment of water rents.

Under the head "Sources of Wastage," he states that this may occur by deliberate or negligent wastefulness or by leakage due to defective plumbing, and then gives a number of illustrations of where such waste or leakage may be found. The result of wastage he gives as "bills for water referred to usually as outrageous or large beyond reason"; and shows how such large bills result from comparatively insignificant leaks by giving a table showing the amounts of water flowing from orifices of different sizes under 50 pounds pressure, in gallons dis-



charged per day. His directions for detecting wastage is to close all fixtures in the house and note whether the one cubic foot pointer on the meter moves. If it does, there is defective plumbing somewhere. If the consumer cannot locate this, the office will send an inspector of leakage without cost and furnish the result within two days. "If water cannot be conveniently shut off long enough to make tests for leakage, institute regular periods for inspection of all plumbing, at the same time taking readings for comparison. Compare the use of water at night with that of the day. Compare readings at regular intervals.

"Watch outside hydrants. Place ear to same for detection of underground leaks. Leaks may be detected at times by placing nail or knife between teeth and holding it against pipe or hydrant, plugging ears with fingers. Trickling water may be heard in this manner.

"Small streams of water show faintly on porcelain water closet bowls. Bend stiff paper and hold against bowl, allowing water to run down curve. The amount of water escaping will be surprising at times."

Under "Prevention of Wastage," he recommends reading the meter at regular intervals and comparing readings, and if any reading is excessive, to ascertain the cause as soon as possible. Learn from the meter readings how much water is permitted to run to prevent freezing. If the service is to remain in disuse for an indefinite period, have water shut off by the water works (for which there is no charge). If for a short time only, shut off at stop and waste back of meter, drain the pipes and close faucets tightly.

At the top of the sheet are the words "The friend of the water consumer, the meter—watch it, read it, heed it."

"A perpetual invoice.

"A meter in working order registers no more water than passes through it. It is fair to the consumer.

"A meter out of working order registers less water than passes through it or stops altogether. It favors the consumer."

#### DETERMINING FINENESS OF CEMENT.

Three years' experiments devoted to producing a means of determining the exact fineness of cement have resulted, at the Bureau of Standards, in the developing of an apparatus which is effective for this purpose.

It is very important to have some means of measuring directly the entire state of subdivision of cement; in other words, to discover just what percentage of the material is made up of particles of certain definite sizes. If such a division can be made, it should be possible not only to compare the efficiency of different grinders, but also to determine what degree of fineness must be attained before the cement becomes "hydraulically active"—that is, capable of combining with water to form the binding material in mortar and concrete.

The apparatus devised by the Bureau of Standards consists of a vertical brass pipe, about 3 inches in diameter and 5 feet long, at the lower end of which is attached a glass bulb in which the cement to be tested is placed. Air at constant pressure is blown into the cement through a glass tube or nozzle in the side of the bulb, and as the air can escape only through the vertical stack it carries with it the cement dust, which is caught in a flannel hood surmounting the stack. The air flow in the stack is very uniform, and in a short time all the dust will be removed from the cement, leaving a granular residue in the glass bulb. This residue is weighed and the amount of dust is determined by subtracting the weight of the

residue from that of the original sample of cement. Different grades are obtained by using different-sized nozzles, and thus a number of separations can be made in the very fine portion of the cement. With the aid of the microscope the size of the largest particles in any given separation can be readily determined, and in this manner the apparatus is standardized without reference to the size of the nozzles and other parts of the apparatus or the air pressure used.

It is found that the cement "flour"—that is, the portion of cement which contains no perceptible grit when rubbed between the fingers—consists of particles less than 0.0007 inch in diameter. The apparatus is called the air analyzer, and may be used for separating and grading any hard-grained materials, such as ground quartz, emery and other abrasives. The air analyzer in modified form is also capable of separating many other powders, for example, paint pigments, plasters, clays and similar materials.

Copies of Technologic Paper No. 48, the publication upon this subject, may be obtained, without charge, upon application to the Bureau of Standards, Washington, D. C.

#### SHEET ASPHALT FOR FLORIDA ROADS

Two and a Half Inches of Sheet Asphalt on a Sand-Clay Base—All Materials Except Asphalt Obtained Along Road—Construction Details.

By GEORGE L. WATSON.\*

For years past the state of Florida has generally known but two types of "good road" work; brick, without filler, laid upon a sand base, and sand-clay. The cost of the former is generally prohibitive for the yardage to be covered with the usual appropriations; the latter is less than useless after constructed for the reason that generally speaking the average layman does not consider proper maintenance a part of the road cost.

The solution of this problem has been a vexing one in the state, as they have been restricted to the use of available materials, and these materials consist entirely of sand, clay, some flint rock, shell and calcareous limestone. Sections of the state that were fortunate enough to possess stone deposits used them to advantage in building metal roads, but the interior counties had recourse only to clay, straw, pine needles, etc, which, at best, were but poor make-shifts.

A type of road is now being adopted generally by the interior counties which is a regulation sheet asphalt, known locally as "Modified Sheet Asphalt," laid upon a four-inch puddled clay base. Its advocates claim it to be the solution of the road problem. This type of construction is not entirely new, but resulted from an experiment begun in January, 1913, by the late John S. Lane, of Eustis, Florida, who laid about 600 feet of road of this general type. This road, however, was not built with modern equipment, but in a crude manner; no attention being paid to sand gradation, percentages of voids, or the usual refinements of good practice. Fortunately the pit from which the sand was taken was as near the uniform standard as it is possible to get, even by blending, and to this fact, I believe, was due the success of the experiment.

This little stretch of road, which was for a time the object of unfavorable criticism and predictions of failure, has, after two and one-half years of constant use without one cent being spent upon it for repairs, proved out the fact that the interior counties of the state have it within their power to construct a durable highway at consider-

\*Consulting civil engineer, New York.

ably less cost than their heretofore more fortunate sister counties.

Immediately upon the report of the success of this roadway, small towns needing pavements started to adopt the type. But their impatience to construct and the asphalt salesman's desire to sell resulted in several failures, caused by utter disregard of the basic principles of sheet asphalt construction. Engineers of experience in sheet asphalt work will realize that the heating of sand on an



LAYING ASPHALT SURFACE.

iron plate, the mixing of topping in a mortar box by the aid of a hoe, and the laying of same by shoveling from the mixing box to the base, where it was beaten down with a wooden block and finally finished with a tennis roller, could produce but one result. I inspected the laying of several of these pavements in Florida at the time the work first started, and found that it was folly to attempt to explain to those in charge the failure they merited by the utter disregard of basic principles. To them "sand-asphalt" meant only sand and asphalt, regardless of the composition or qualities of either. I have inspected some work done that crumbled and broke, due to burnt material, other streets with grass growing on it (not through it but from the center outward), showing that sufficient heat had not been used to destroy the vegetable matter contained in the sand; other streets that pushed and shoved, (high percentage of low-mesh material), and so on without limit.

Lake County has bonded itself for \$500,000 for the construction of a series of hard surface roads. Based upon Mr. Lane's experiment and the faith of District Commissioner Simpson of Mount Dora and his colleagues on the board, it was decided to call for bids upon a material specified as "Modified Sheet Asphalt," which was to be laid 2½ inches thick after compression, upon a 4-inch sand-clay base, with shoulders two feet wide. Other counties and towns decided to delay their work and note the manner in which this work would be done, in order that future work might be a success, and not a failure, as it was in a fair way to become under the prevailing crude treatment and lack of knowledge.

The J. B. McCrary Company of Atlanta, Ga., were engaged as engineers upon the work and the county commissioners of Lake County, acting upon the advice of J. C. Cooke, chief engineer, adopted specifications that were so worded as to preclude any but experienced asphalt contractors from bidding. All available data were furnished each bidder regarding the sand pits and their adaptability, a careful survey having been made for this purpose by Dow & Smith of New York City.

Prior to the award of the contract and after the submission of bids, the bidders were called in conference with the board and invited to state their qualifications for the work in question and name their equipment and its extent, as well as references of past work. On June 6, 1915, the contract was awarded to the Continental Public

Works Company, of New York City, for the construction of 30 miles of "modified sheet asphalt," to be finished within 175 weather working days.

Upon the signing of the contract, the contractor shipped two outfits to Umatilla, Fla., 8 cars being required for each outfit; and upon arrival, same was set up between Umatilla and Altoona. The plant used is a portable road plant mounted upon wheels with treads 24 inches wide (for ease of hauling over sand) which, with twin pug mixer, weighs 15 tons; a 40 h.p. Ames boiler and 30 h.p. Vim engine; 1,000-gal. (Continental design) asphalt kettle and two 750-gal. kettles; 2-yard Watson asphalt dump wagons; two special 10-ton Kelly tandem road rollers; three water wagons; pumps, camps, etc. In value, each outfit represented an outlay of \$22,000. Due to the mileage to be covered, the grading and asphalt outfits are all housed under canvas, as a speed of a little over a mile per week (laying time) is expected.

Before locating the plants the following clause of the specifications was taken into consideration: "After the plant has been located and before any surfacing is mixed, the engineer shall make a mechanical analysis of the mineral aggregate proposed to be used, determining if it has the proper grading." This has been done with all proposed plant locations, and in addition the inspector at the plant is constantly making tests to keep the resultant mixture up to the standard set, which is equal to that of the north. In order to maintain this, it is sometimes necessary to blend as many as four different sands to get the desired result. To this careful inspection on the part of the engineers and the desire of the contractor to give the best results on this demonstration work is the success of this roadway due.

In beginning construction, the road trench is graded out to a true cross section 4 inches below finished grade, grade and line stakes having been set out on an offset previous to this. When excavation has been carried three inches below finished grade, a Fresno scraper is used for the final shaping up. Water is then applied to the sandy soil and it is immediately rolled with a ten-ton tandem roller until the sub-base is firm and hard. The



ROLLING FINISHED ROAD.

nature of the soil is such that after this watering and rolling it becomes so firm that dump wagons can be hauled over it with very little rutting. Immediately after the rolling, clay is hauled on in bottom-dump wagons and carts, is dumped in position, raked, rammed to break up any lumps, and evenly spread to a depth of 3½ inches. The clay is then rolled with a ten-ton roller and any soft or low spots developing are filled. A light coating of sand is then spread over the entire surface, which is then thoroughly puddled until it has the appearance of a wet mixture of concrete. Additional sand is then spread and the surface rolled until it becomes firm and shows no indications of pushing ahead of the roller. A second course is then applied in the same way, giving a total thickness of four inches, and when this is completed a road machine is run over it to shave off any irregularities. When such



a base has been finished and left open to the sun for two days it becomes so hard that no impression is made upon it by several days' continuous hauling, unless it has been wet by a severe storm.

The clay used for the base is obtained from clay pits, which are an average of three miles apart and about 500 feet off the right of way. Most of them require considerable stripping. The clay is churn-drilled in the bank and blasted out with black powder.

The grading outfit consists of 35 double teams, half-yard western wheelers, 2-yard bottom-dump wagons, scrapers, road machine, 2 water wagons, roller and about 60 men. This entire outfit is housed under canvas.

The clay base is constructed 15 feet wide and 4 inches thick. Upon this, true to grade and spaced nine feet edge to edge, are spiked lines of oak plank  $2\frac{5}{8}$  inches thick, 8 inches wide and of various lengths, to act as guide strips,  $\frac{1}{2}$  inch iron spikes 18 inches long being used for this purpose. The base is then shaped up, watered and rolled with a 10-ton roller immediately prior to the depositing thereon of any hot material. The hot material is then dumped onto steel plates 4 by 8 feet and  $\frac{3}{4}$  inch thick, two used to a set, as shoveling platforms, the wagon being turned on the short axis and any ruts made in turning immediately shaped up. From these plates the material is carried to position, spread, raked, edges tamped, rolled, and finally a coating of cement swept over the surface, after which the border boards are removed, the shoulders

a watchman. The firemen, mixermen, dustmen and blenders are doubled because of the extreme heat experienced and inability to work a continuous shift.

The road gangs are made up of 1 foreman, 2 rakers, 14 shovelers, 2 tampers, 3 border board men, 1 water wagon



A STRETCH OF COMPLETED ROADWAY.

team, 2 rollermen (1 on grade in advance of surface and 1 on the top), roller fireman, cement sweeper and pumper. The shovelers are doubled.

To prevent loss of time which would be caused by a wetting of the base by the sudden tropical storms that occur sometimes twice daily, the contractor has on hand large tarpaulins, 20 by 10 feet in size, with which, on the approach of storms, 450 feet of base is covered; small trestles being used to shed the water to the sides. After



PLANT NO. 1, AT ITS FIRST SET-UP.

filled in with clay and rolled, and the road is ready for traffic.

Prior to starting the work it had been assumed that the same number of men and teams could operate the plants, lay the material on the road, and do the hauling as on a job with the same conditions in the north. This was found to be impossible, a double gang being needed entire in each instance, with but few exceptions. The local teams available are but poor stock, 2,000 pounds plus the wagon being the maximum load they can haul, with snatch teams at the plant and at each rise of the road, with a lay off of two hours during noon time. For an average haul of  $1\frac{1}{2}$  miles, 8 double teams are used for hauling, with 1 snatch team at plant, 1 at the mile post and 1 at the street to "spell off" and assist the 8 hauling teams.

The plant gang consists of one foreman, engineer, 4 firemen, 8 cold feeders, 1 asphalt dipper, 2 dust men, 2 mixermen, 4 asphalt loaders, 3 teams hauling blended sand, 4 men blending, 1 pump man, 2 camp flunkies and

the shower, which rarely lasts over one hour, is over, the covers are removed and the work proceeds.

The amount of work done per day varies considerably. With the 9 foot road, as high as 1,100 feet has been finished in one day per outfit; but the average thus far has been nearer 875 feet. The work of laying started August 15th, and to date a matter of four miles of this road has been constructed. One of the many analyses made of samples of the road (a matter of 30 out of a 15 days' run) shows as follows:

Asphalt	10.2
Passing 200 mesh	12.1
Passing 100 mesh	13.3
Passing 80 mesh	13.7
Passing 50 mesh	24.2
Passing 40 mesh	9.1
Passing 30 mesh	7.0
Passing 20 mesh	7.9
Passing 10 mesh	2.5
	100.00

The utmost care is being taken by the contractors in the construction. The asphalts (U. S. Asphalt Refining Co.'s Aztec and Standard Oil Co.'s products) are tested daily, a penetration of 40-43 being used. All men engaged upon the work, with the exception of common labor, were brought from their northern work.

Delegations of commissioners from Polk, Orange and Volusia counties and many of the interior towns have made inspection trips to the work, and it is praised by the papers of the state and the people at large. The writer does not advocate this type of road as a cure-all, nor will it prove to be a success unless handled in a manner consistent with the best standard practice and equipment and with a regard to durability and workmanship rather than low price.

Edward S. Nelson is division superintendent in charge of the work and C. Theodore Jones is resident manager for the contractors, the Continental Public Works Company, of which W. B. Spencer is president, L. B. Cruden vice-president and the author is general manager and general superintendent of all construction work done by the company. Immediately previous to this work this company constructed the roads around the Ashokan reservoir for the city of New York.

#### PITTSBURGH'S NEW MARKET HOUSE.

Pittsburgh, Pa., opened for business a short time ago a part of a new market house which the officials believe will be, when completed, one of the best equipped in the country. The finished market is to consist of two buildings directly opposite each other on Market street. At the present time the exterior of one building has been finished and temporary stalls erected, so that business may be carried on there, and the work of demolishing the old market house which occupies the site of the second part of the new scheme has just been concluded. The two structures, when finished, will be practically alike in construction and equipment. The total cost of construction and equipment for both buildings is about \$400,000.

The completed building consists of a cellar, two market floors, and one mezzanine floor. In the cellar are located a refrigerating plant and heating system. On the first floor the butchers, fish vendors, etc., have their stalls. The mezzanine floor will be used as a place for storage and also as a receiving room for produce and vegetables.

The building is of all brick construction, 170 by 70 feet and 72 feet high. Through the middle, running from Market street to Diamond street, is a terra cotta arch, 50 feet wide and 27 feet high. Terra cotta has been used also in a band which circles the building several feet above the ground, in the window sills, the cornice, and the gable. The roof is a skeleton construction of light steel. The floors of the structure are cement.

The electric light is furnished by the city's power plant. The building is well equipped with large overhead lights, and there are also round globes at both ends of each stall, which stand on poles about 8 feet high.

There are nine elevators in the building, five of which are for freight and four for passengers. The freight elevators are located in the back of the building, where all goods must be received.

Every part of the construction work and equipment has been selected with a view to absolute cleanliness and freedom from the filth which is so often found in places of this kind. For this reason no bell traps have been put in the floor, for these tempt stall owners to make a lot of dirt on the floor because it can be easily disposed of.

The stalls have not been placed yet, but will contain many novel features. The meat stalls will be set on a foundation of brick and concrete, thus precluding any possibility of rats or mice making their homes underneath.

The show cases will have a tile floor and marble base, and large glass doors, so that the meat can be seen and inspected, yet cannot be touched and is protected from dirt and uncleanness. Each stand will have mechanical refrigeration, the refrigerating compartments having a marble exterior with metal trimmings. Drawers with a metal insert in which paper, string, etc., may be kept eliminate the old method of having such articles carelessly scattered beneath the counter.

The name of each stall owner will be painted on a long strip above the stall, and at each end of this strip there will be an illuminated number box, on which will be painted the number of the stall. These illuminated number boxes are in addition to the lights which have been mentioned before. Every stand will be equipped with a telephone.

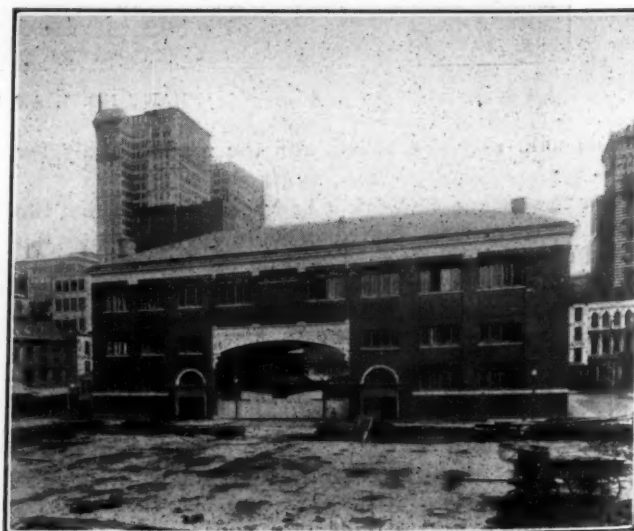
The vegetable stalls are composed of metal almost entirely. There are large display cases which are arranged with sloping bottom in order that the goods may be displayed with more facility. The stands are eight inches from the floor, providing space for keeping the floor under them clean.

Each fish stall is equipped with three large porcelain trays. These stands, like the meat stalls, have cases constructed of marble with large glass doors for the hygienic display of goods. The fish stalls have a special drainage system, entirely apart from the drainage system used in the rest of the building. The candy and flower stands also are constructed of glass and marble and present a decidedly artistic and cleanly appearance.

The general contract for the building which has just been completed was held by the Henry Schenk Company of Pittsburgh. J. M. Tate, of Pittsburgh, did the general and supplemental plumbing. The Hocking Valley Clay Company, of Ohio, furnished the brick. The heating contractors were the Anderson, Darragh Company, of Pittsburgh. The elevators were installed by the Otis Elevator Company. Rutan and Russell, of Pittsburgh, through whose kindness much of the information for this article was obtained, are the architects.

The neighborhood of the new market house is experiencing a boom in business with the completion of the first half of the market, aided by the recent completion of the Manchester bridge and the paving and raising of Penn avenue.

For the above information and the illustration we are indebted to the Pittsburgh Industrial Development Commission.



COMPLETED HALF OF MARKET AND SITE FOR OTHER HALF.



# Municipal Journal

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## CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

SEPTEMBER 30, 1915.

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## Autumn Leaves.

With the falling of the autumn leaves begins an increase of work for the street cleaning departments of cities blessed with abundant shade trees and in which an effort is made to keep the streets clean. Streets which carry little traffic and ordinarily need or receive attention from the department only once in a week or more must be swept every day at this season if they are to be kept reasonably clean.

There is another difficulty presented by the leaves—the practice of many citizens of burning on the roadway those raked from their yards and swept from their walks. This is a nuisance to the neighbors because of the smoke created, horses are apt to be frightened, and bituminous pavements may be seriously injured by the heat. Most cities, however, refuse to remove leaves in their refuse collection. Leaves washed into sewers are sometimes responsible for stoppages or at least deposits in them; and they are in other ways objectionable.

It seems to us that the collection and removal of leaves, like that of snow, should be treated as emergency work of the street cleaning department, to be aided by the citizens. It is even more desirable and much less difficult than snow removal. Moreover, the leaves actually have some value to both city and householder when they are in a position to utilize it. This value is indicated by nature's use of leaves, in enriching the soil and protecting vegetation against damaging temperature changes.

Many plants require to be wrapped in straw or other protective material during the winter. This does not prevent the cold from penetrating to the plant, but does prevent both cold and heat from penetrating quickly and thus maintains the plant at a fairly uniform temperature day and night, which is the condition required. It is especially desirable to protect the roots, and leaves are as valuable as straw or more so for this purpose. By spring they will be well compacted and partly rotted and can be dug into the ground as a fertilizer.

The city might educate the citizens in this use of leaves by those who have gardens, also offering to collect such leaves as are packed in barrels or bags; enforcing an ordinance against burning leaves in the street. The leaves collected by the city could be used in its own parks for protecting plants or could be composted with manure or street sweepings for use next year on parks or other public lands or to be sold as humus. Several cities have found such use to be well worth while, as described in past issues of Municipal Journal.

## Sheet Asphalt for Highways.

Given a state in which there is to be found little material which can be used for road construction other than sand, with occasionally a clay bank and a little soft rock, and with high freight rates from the nearest quarry or brick-making region, and the road problem becomes a real one. Such is Florida's condition. Brick and granite blocks can be brought by water to three or four harbors, but are very expensive for interior points. Sand-clay roads have been tried, but to keep these in repair requires the best drainage and careful maintenance, and drainage in an almost absolutely flat country is a difficult matter.

Sand, however, is abundant, and sheet asphalt is 90 per cent sand; while asphalt from southern fields probably costs as little for freight as any other material which could be imported. There would seem to be sound argument, therefore, for the use of sheet asphalt where anything other than local materials must be employed. How a 2½-inch wearing surface of this on a sand-clay base (to which it could not be expected to adhere) will wear, to what extent it will creep in hot weather, and whether the base will develop ruts or other depressions in wet weather, are matters which experience alone will decide. The considerable stretch of this road now being laid, described elsewhere in this issue, will be watched with interest by good road officials both in and out of Florida.

## Effect of Markets on Real Estate.

Two municipal markets are described in this issue, one a large building elaborate in its completeness, the other a simple but substantial shelter covering tables also substantial but inexpensive. By a coincidence, both are said to have one feature in common—that they have increased the value of real estate in the neighborhood for business purposes.

In some cases opposition to the construction of a market in a given locality has been pressed by owners of property in the vicinity, and we suppose that whether the project is favored or otherwise by a given business man would depend largely upon whether his business is or is not in direct competition with the market. If not competing, the neighboring stores would probably find the market valuable to them in attracting crowds for the same reason that "white way" lighting is valuable. This is a feature which might well be considered by cities contemplating the establishing of a market; not the least important point being the effect which the nature of the business already established in the street or district will have in deciding whether real estate values there will depreciate or appreciate because of the market.

## PORTLAND'S PERMANENT MARKET.

BY H. M. WHITE.

Portland, Ore., has three markets, one of which is permanent, novel in construction and a financial success. It occupies sidewalk and roadway space along both sides of 800 feet of a street in the heart of the retail business district and near the principal street car loops. At first, temporary wooden booths with canvas roofs were erected at municipal expense and attendants furnished by a citizens' committee interested in the public market movement. So successful was the market that the city replaced the temporary structures with permanent ones and assumed full control of it.

Permanent umbrella sheds were constructed with steel uprights 10 ft. high supporting steel-beams on which rest corrugated iron roofs, covering a width of 12 feet, which slope each way toward the line of uprights, where leaders carry the rain water to the street gutter. The stalls are of wood, and were designed by city commissioner Bigelow and building inspector Plummer. When not in use they fold up. Each is four feet wide and five feet high, slightly inclined toward the sidewalk. When folded it stands parallel to the line of the shed uprights. Attached to the curb is another line of platforms which, when lowered, provide dry, level footing for the salespeople. These also fold up parallel with the uprights, leaving the roadway free for traffic and cleaning.

On the street side and on each end, the sheds are provided with canvas curtains, which may be lowered to the street during stormy weather to protect the salespeople. On the sidewalk side, canvas is stretched from the buildings to the shed to keep the rain from those on the sidewalk beyond the shed roof. The sheds are provided by the city with electric lights, garbage cans, sanitary drinking fountains and faucets for washing vegetables. The dealers are required to clean up their booths and the street underneath before leaving. The city gathers the refuse.

Cutting meat is prohibited in the market, although its sale is permitted provided glass cases are installed by the dealer. A meat cutting room has been fitted up in the basement of a building adjoining the market. Here tools may be rented cheaply, or the producer may furnish his own.

The market is reserved exclusively for producers, who must show, upon demand, his lease or deed or other satisfactory proof that he is a producer. About 20 arrests and prosecutions have been made for violations along this line. A charge of 10 cents a day is made for each stall, with an additional 15 cents for stalls occupied by organizations of producers represented in the market by salaried salesmen;

also an additional 10 cents for each additional sales person unless a son or daughter of the producer.

The market contains 189 stalls. The total cost of the permanent sheds was \$8,841.76, of which abutting property owners contributed \$4,950.76. The total receipts from July 1, 1914 when the market first was established, until September 15, 1915 were \$4,898.45. The cost of operation is \$105 a month for a market master, \$85 for an assistant and \$3 a day for a second assistant (employed only on Saturdays), and small amounts for light and garbage collection. The market master has full charge of the collections of rentals, assignment of stalls and investigation of credentials of producers.

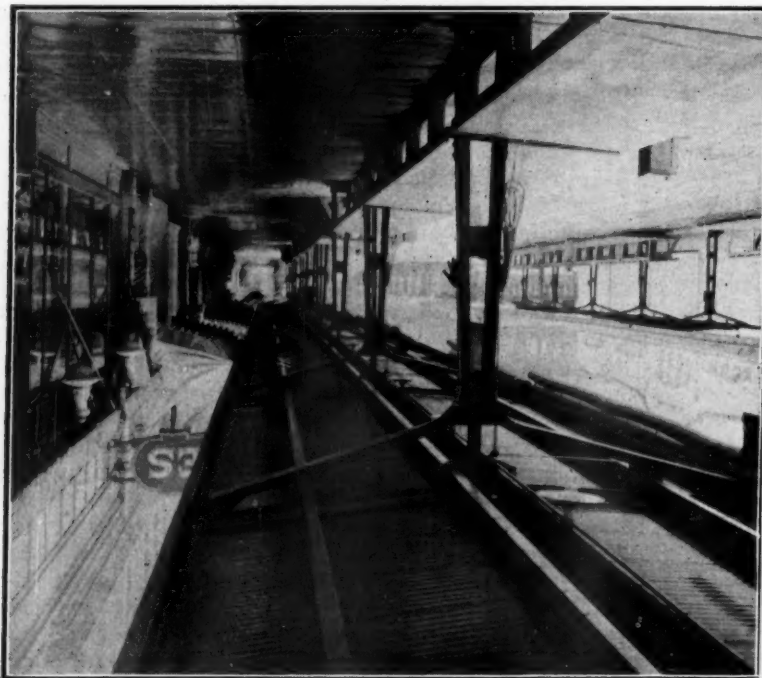
The market is open every day except Sunday from 6:30 A. M. until 6 P. M. and until 9 P. M. on Saturdays. No sales may be made before or after those hours. All stuff offered for sale must be marked with its price. Eggs, butter, poultry and crates must bear the name of the producer. Any producer may be barred from the market permanently or for a specified time for violation of rules and regulations. The city makes no effort to regulate prices except to prevent prices higher than those in the general produce market.

The street occupied by the market was formerly a side street of cheap stores, many vacant, and low rents. Now all places bring high rents for market purposes. Two new market buildings have been erected and owners are contemplating others. Grocer associations have bitterly opposed the market for various reasons, one because so many aliens occupy the stalls; another, that the city gives "10 cent rent, free lights, free garbage service and other advantages to the disadvantage of merchants who rent nearby spaces."

Since the market was first established it has more than paid its way every month, even during the stormiest winter months. The city soon will have paid off the entire cost of the permanent sheds and will have an income of several hundred dollars a month from the market.

## ROADS ACROSS SWAMPS.

Some of the most heavily traveled roads of New Jersey cross meadows which are but thin crusts of earth floating on semi-fluid material. This makes road construction and maintenance exceedingly difficult. The only permanent solution found is to continue filling the road from time to time as it settles in the muck, until final settlement is reached; the surface of the road being kept at least 4 feet above high water, and a pavement capable of carrying the heavy traffic being relaid with each raise in height.



MARKET STALLS SEEN FROM SIDEWALK.  
Counters all Down. Shows Roof Details.



MARKET STALLS SEEN FROM STREET.  
Some Counters and Platforms Up, Some Down.



## The WEEK'S NEWS

Illinois State Highway Plans—The "Jefferson Highway"—Disease Prevention in Indiana—San Francisco's Water Suits—Water Waste in Sacramento and Bristol, Tenn.—Lowering Lighting Rates in Lincoln and Birmingham—Fire Prevention Day in Iowa and Oklahoma—New Auto Apparatus—City Officials' Difficulties in Memphis and Nashville—Financial Straits of Boston and New York—New York Subway Cave-Ins—Municipal Dance-Hall and Municipal Bakery.

### ROADS AND PAVEMENTS

#### Plans for Illinois State Roads.

Danville, Ill.—Plans to effectively "pull Illinois out of the mud" are being submitted to Governor Edward F. Dunne by the Danville Industrial Club and the supervisors of Vermilion county. Resolutions suggesting that in the event Governor Dunne decides to call a special session of the general assembly that he recommend the "Vermilion County Hard Road Plan" for the construction of a net work of good roads all over the state have been drawn up. The plan is to bond the state sufficiently to raise money enough to grid-iron Illinois with a system of permanent roads that will pass through every county seat, every city of more than 10,000 people, with 17 cross state roads and nine north and south routes. A total of 5,000 miles of road will be built.

#### Agitate for "Jefferson Highway."

New Orleans, La.—A national highway from New Orleans to Winnipeg, Canada, is the aspiration of numerous good roads boosters, commercial bodies and officials of cities, counties and states on the west side of the Mississippi river. The first step in the launching of this object will be taken in New Orleans, November 15 and 16, when the Jefferson Highway Association is to be organized at a meeting of roads enthusiasts from the central, northern and southern valley districts. E. T. Meredith, publisher of the "Successful Farmer," at Des Moines, Ia., is commonly given credit for conceiving a north-and-south highway. He has proposed no routes, except that the northern end will be at Winnipeg and southern end at New Orleans. The New Orleans Association of Commerce is starting the first tangible preliminary work. It has called the November meeting and has sent invitations to 750 commercial organizations, mayors, governors, good roads associations, educational associations, civic bodies to appoint delegates and invitations to automobile manufacturers and agents, good roads enthusiasts, and public officials generally to attend. It is not expected that at the meeting at New Orleans any definite route will be finally chosen—only competing roads will submit their claims which will come up for consideration at a later date.

#### County Apportionment in Washington.

Olympia, Wash.—The collections from automobile licenses under the new state code total approximately \$200,000, allowing a net fund of \$130,000 already for permanent highway maintenance in the counties. The distribution of the first \$100,000, as worked out by the highway department, will be taken as a basis for all future distributions. Under the code, the first \$70,600 of collections go toward meeting all expenses of administration for the biennium, all remaining moneys being returned to the counties in the proportion in which they collect taxes for the permanent highway fund. The following are the amounts allowed the counties: Adams, \$2,040; Asotin, \$370; Benton, \$1,300; Chelan, \$1,790; Clallam, \$1,190; Clarke, \$1,800; Columbia, \$930; Cowlitz, \$1,320; Douglas, \$1,080; Ferry, \$300; Franklin, \$1,210; Garfield, \$520; Grant, \$1,560; Grays Harbor, \$3,640; Island, \$170; Jefferson, \$700; King, \$23,750; Kitsap, \$620; Kittitas, \$2,050; Klickitatt, \$1,400; Lewis, \$2,330; Lincoln, \$2,440; Mason, \$610; Okanogan, \$790; Pacific, \$1,530; Pend Oreille, \$640; Pierce, \$8,610; San Juan, \$160; Skagit, \$2,140; Skamania, \$470; Snohomish, \$3,950; Spokane, \$12,130; Stevens, \$1,150; Thurston, \$1,400; Wahkiakum, \$190; Walla Walla, \$3,030; Whatcom, \$2,880; Whitman, \$4,550; Yakima, \$3,070.

### SEWERAGE AND SANITATION

#### "Disease Prevention Day" for Indiana.

Indianapolis, Ind.—Governor Ralston has proclaimed October 1 as "Disease Prevention Day" in the state and the state board of health is sending out literature to municipal officials containing much valuable information and suggestions on methods for celebrating the day. Detailed and practical plans of organizing for the day and the manner in which various bodies like the schools, clubs, women's organizations, churches, business men, labor organizations and individuals can help are explained. Suggestions for a number of interesting floats for a parade are also made. A number of cities and towns have notified the department of arranging for celebrating the day.

#### More Typhoid in Danville.

Danville, Pa.—The typhoid fever here is still spreading, 9 new cases having developed in two days. The number of cases in Danville and suburbs is now 59. At the State Hospital for Insane it is believed the disease has been permanently checked as no new cases have developed. Reports received on samples of water taken from the borough's mains state that the samples contained sewage organisms which could produce typhoid fever.

#### City Wins Fight for Sewers.

Hammond, Ind.—The city of Hammond has won a two-year legal battle to dissolve an injunction which the Anti-Deep Sewer Association, a body of taxpayers, had obtained when the city let a contract for a sewer system to cost \$750,000. Judge Paulus, of Marion, sat in the case as special judge in the circuit court. The sewer question was one of the issues in the last municipal campaign.

### WATER SUPPLY

#### Irrigation Suits Against San Francisco.

San Francisco, Cal.—Suit has been filed by the Modesto irrigation district against the city of San Francisco, involving allotment of Hetch-Hetchy water to that district by Congress. Modesto has just harvested its experimental rice crop, which requires intense irrigation. In the suit, which was begun in Stanislaus county and transferred to San Joaquin county for trial, the Modesto irrigation district has asked that it be given the perpetual right to 2,000 second feet of water from the Tuolumne, which is far more than it uses or ever will use, City Attorney Percy V. Long states. The city attorney has been gathering evidence since the spring of 1914 and intends doing so until next year, when the case may go to trial. Soil and irrigation experts, some of the best in the state, have been at work for the city in the Modesto irrigation district for a year and a half, Long says. He expects to show by them that the present allowance of water to the district is ample and that it never will want more than half of the quantity which it claims in the suit.

#### Water Waste in Sacramento.

Sacramento, Cal.—Sacramento is wantonly wasting water, and something must be done shortly or serious conditions may result at the waterworks, according to a report which Engineer Ehret of the waterworks has made to Commissioner Coulter. Ehret pointed out that this city uses on an average of 307 gallons of water per capita, based on a

population of 50,000 water users, whereas only 150 gallons should be used. His report shows that in 1914 the average consumption amounted to 307 gallons per capita, and in 1913 it amounted to 315 gallons. In 1914 Ehret's report shows 5,610,486,920 gallons of water were pumped, as against 5,525,617,900 gallons in 1913. The cost of operation in 1914 was \$58,695, as against \$35,872 in 1913. The plant is valued at \$1,138,846, and the net earnings are given at \$75,427, or 6½ per cent on the investment.

#### **Pumping Tests Bring Damage Suits.**

Ann Arbor, Mich.—A claim for \$11,000 and nearly a dozen for \$5,000 has been filed against the city by farmers of Pittsfield township who allege they have been injured through the test pumping the city has been doing on the Steere farm, purchased a year ago as a possible supply of water for the city. The water tests, it is claimed, have taken all the surface water from the farms. The largest case is now pending in the supreme court.

#### **Threaten Arrest of Water Wasters.**

Bristol, Tenn.—With the low pressure and lack of water in high portions of the city, attributed to waste by consumers, Water Commissioner J. H. Harkleroad has been instructed by the board of mayor and commissioners and given police power to arrest all consumers in the city who are permitting the waste of water. It is stated that in order to increase the supply to the pressure needed the use of water for irrigation purposes will be prohibited. Persons who have leaking water fixtures are requested to have them repaired at once, or be subject to a summons before the recorder and a possible fine. The Henry Preston spring, from which the supply is obtained, has a daily flow of two million gallons.

### **STREET LIGHTING AND POWER**

#### **Springfield Begins Municipal Lighting.**

Springfield, Ill.—Commissioner Spaulding is much pleased with the 750-K. V. A. turbo-generator, over the installation of which at the pumping plant considerable litigation has resulted and which is now finally ready for business. It is now supplying current to the city, after a three years' fight. Mr. Spaulding said: "The improvements made should have been completed in six months instead of requiring three years; but monopoly dies hard. We have had the company to fight from ambush from the beginning." This machine will provide current for about 2,000 consumers, besides lighting the entire city.

#### **Win Half a Million Gas Rebate.**

Lincoln, Neb.—Lincoln patrons of the Lincoln Gas Company will be benefited half a million dollars by the decision of Judge Page Morris of the federal court if it is sustained by the United States supreme court. The decision found for the city on all points involved in the dollar gas case. The half million dollars represents the rebates due patrons since the date of the passage of the dollar gas ordinance in 1906. The city had dollar gas only a few weeks when the company voluntarily put the ordinance into effect. A bond has been filed covering the amount of the rebates due to the patrons and providing the company decides to fight the case no longer, the only step to be taken will be for the judge to direct the manner of the payment of the rebates.

#### **City Officials Sued for High Rate Franchises.**

Ogden, Utah.—Prominent taxpayers have filed a suit against Ogden city, the Utah Power & Light Company, A. G. Fell, T. Samuel Browning, Christian Flygare and the board of commissioners of Ogden city, asking for judgment against all of them that they be enjoined from enforcing three franchises recently granted by them on the grounds that the rate fixed is unreasonably high and ask the court to fix the price. It is charged that the franchises are intended to take from the people the right to fix these rates through their legally elected city officers for 50 years, which is claimed as unreasonable and unjust. It is further charged that the rates that have been collected in the past were excessive and that, under a 50-year franchise, they will continue to be far in excess of what conditions and

circumstances warrant. The following are asked for as fair: \$2.50 for arc lights per month; 2½ cents per kilowatt for incandescent lighting, and 1½ cents per kilowatt for power and heating purposes. The complaint further states that the light company had a franchise still good for 30 years and that the extension of it to a 50-year period is unreasonable, unauthorized and illegal; that the owners of the various companies making applications for the three franchises are under control of one management, and that they work in collusion and are not in competition with each other, and that such control has a tendency to prevent competition and that the prices are controlled to the detriment of the people, and that the granting of the franchises will create a monopoly.

#### **Plan Municipal Lighting System.**

Oroville, Cal.—First steps toward municipal ownership of the distributing system in Oroville of the Oro Electric Corporation have been taken by the city trustees, when they adopted a resolution instructing the city clerk to ascertain from the state railroad commission the conditions under which the system can be appraised. Meanwhile City Attorney J. A. McGregor has been asked to ascertain for how much more debt the city can bond itself. The Great Western Power Company is about to purchase the Oro Electric Company's holdings.

#### **City Officials Secretly Lower Rates.**

Birmingham, Ala.—The city commissioners secretly passed an ordinance amendment which in effect reduces the price of electricity to consumers of Birmingham by 10 per cent. The commissioners hurried through and kept it secret because the legislature was expected to pass the public utilities bill, which will take all such matters out of the hands of the city and turn them over to the state railroad commission. The commissioners carried their new ordinance down to the advertising in order to comply with the law and make the reduced rates effective before the legislature could act. The minimum charge is placed at 10 cents per kilowatt hour and two 10 per cent discounts on this make the rate practically 8 cents even for the smallest consumer. All bills, if paid within 10 days from rendition, will be subject to a discount of 10 per cent. There is a minimum charge for service of 75 cents per month. The ordinance provides payment by the city of \$4.50 per month for arc lights and \$1.50 per month for tungsten lights.

#### **No Free Gas for City Hospital.**

Pittsburgh, Pa.—Judge Ambrose B. Reid has refused the city a new trial in the matter of free gas furnished to the municipal hospital by the Philadelphia Company. The city refused to pay for gas, claiming that under the Westinghouse ordinance free gas was to be furnished to all the city property departments. The Philadelphia Company has been furnishing gas at the hospital since 1884 and always was paid for it until February 27, 1911, when payment was refused by the city controller. A suit was then entered by the gas company to recover \$3,715.81 which it claimed was due for gas furnished from February 27, 1911, to July 27, 1912. The case was heard before a jury and a verdict returned in favor of the Philadelphia Company. A motion was made for a new trial and Judge Reid was asked to set aside the verdict. The court also held that the question of whether or not the municipal hospital could be construed as coming within city property departments which were entitled to free gas under the Westinghouse ordinance passed in 1884 was a question of fact to be determined by the jury.

#### **Natural Gas Production in Appalachian Region.**

Washington, D. C.—The marketed production of natural gas in New York, Pennsylvania, West Virginia, Ohio and Kentucky in 1914 amounted to 425,871,728 thousand cubic feet, having a total value at the point of consumption of \$73,677,641, or an average value of 17.3 cents per thousand cubic feet, according to statistics compiled under the supervision of J. D. Northrop of the United States Geological Survey. Compared with 1913 the output of natural gas credited to these states shows a slight increase, amounting to 608,480 thousand cubic feet, whereas the value of the



production shows a substantial gain, amounting to \$4,359,537, or a 6 per cent increase. The gain in output is credited chiefly to Ohio, and New York gained slightly, the increase being more than sufficient to offset declines in Pennsylvania, West Virginia and Kentucky. The increased output of Ohio is credited chiefly to Cuyahoga County, where a gas field of considerable importance was developed in Cleveland and its suburbs as the result of discoveries made late in 1913. The increase in value of the gas output of the Appalachian states was a condition general throughout the region, and is accounted for by the fact that relatively more gas was supplied to domestic consumers than to industrial consumers compared with previous years. Considering the region as a whole the increase in value for the year amounted to an average of one cent for each thousand cubic feet of gas marketed.

## FIRE AND POLICE

### Fire Prevention Day.

Des Moines, Ia.—Governor Clarke has issued a proclamation designating Saturday, October 9, as "Fire Prevention Day." He requests that it be observed in the schools, in public meetings and in such other ways as may be deemed suitable. He points out that the last report of the state fire marshal shows that in 1914 4,296 fires were reported to his office and that they involved a loss of \$5,858,985, or \$16,052 per day. This does not cover the total number of fires or the total loss because some officials fail to make reports. The same report shows that the damage to dwellings in 1914 was \$106,819 more than in 1913 and that 38 more barns and 57 factories were damaged or destroyed. The loss from defective flues was \$84,157 more in 1914 than in 1913 and from sparks from flues \$64,000 more. Sixty fires were caused from defective wiring in 1914 and the loss occasioned from the careless use, handling and storage of gasoline \$131,127.

Oklahoma City, Okla.—On request of State Fire Marshal C. C. Hammonds, Governor R. L. Williams has issued a proclamation designating October 9, the anniversary of the great Chicago fire, as "Fire Prevention Day." The governor points out that the fire loss of the state in 1914 was \$2,682,355.10. He recommends that the day be observed by public meetings for the discussion of hazards of life and property by fire, for emphasizing individual responsibility for fires, considering the questions of water supply and fire departments and for a general appeal to the people to examine the conditions of their premises and to use the greatest possible care to prevent fires.

### Improving Police Alarm.

Wilmington, Del.—Representatives of the Star Electric Company of Newark, N. J., are in this city making improvements to the reporting system of the police department. The men are also installing on test a flashlight and horn system for notifying policemen on their rounds that they are wanted. If the police commissioners are pleased with the system, they will have it installed permanently when the police department is moved from its present quarters to the new city hall.

### Police Officials in Trouble.

Bessemer, Ala.—Bessemer is a city where the police practices have been "dishonorable, tyrannical and despotic and cowardly," according to the partial report made by Otto F. Mooney, foreman of the grand jury, before Judge William E. Fort. The grand jury states that owing to a defect in the laws it cannot impeach the police officials of Bessemer, but asks the board of aldermen to dismiss three members of the police force it names. According to the grand jury, there is a system of nepotism in Bessemer whereby a police officer was able to assault the chief of police on the public streets and escape punishment. Also the grand jury finds that it was a common occurrence for the police officers to be found intoxicated and irresponsible on the streets. The grand jury also calls attention to the fact that in police court, where a prisoner, according to all usages, is entitled to protection, he was assaulted by

an officer. The grand jury also declares that "third degree" methods were frequently used by the Bessemer police in which helpless negroes were taken in cells in the middle of the night and beaten until they were covered with blood.

### Economy Eliminates Police Chief.

Tacoma, Wash.—The Tacoma council has eliminated the chief of police and placed his duties in the hands of the commissioner of public safety. While the action of the council merely concerned the chief of police, it is thought likely that the precedent may be applied to every one of the city officers where chief deputies are employed to attend to actual running of the departments. The reason given for the change was economy.

## MOTOR VEHICLES

### Buys Fire Patrol and Emergency Auto.

Ocean Grove, N. J.—The \$3,000 Brockway fire patrol and emergency auto which was purchased some time ago by Washington fire company of Ocean Grove, has been received. The car is equipped with a large chemical tank, and is also arranged so that in case of an emergency a stretcher can be hung on the four standards. A complete "first aid" outfit will also be carried.

### Accept New Truck.

Kokomo, Ind.—Following an exhaustive test of the new Ahrens-Fox fire truck it was accepted by the board of works and Mayor Stidger. The new machine did well in all the tests, in one throwing a stream over 200 feet in the air. Chief Ed. Shauman was well pleased with the new apparatus. Chief Shauman's new car has also just been received, from the Haynes factory, where it was made.

### New Combination Tried Out.

Warren, R. I.—The new American-LaFrance truck has received its running and pumping tests. The fire department committee was satisfied and the machine was accepted officially in behalf of the town by the committee, the president of the council, Max W. Saugy, and Chief Engineer William Maxwell of the fire department. The truck, which is the first owned by the town, will be housed at the Central fire station. It is a combination hose, chemical and ladder truck, of 75 horsepower, and is capable of making a speed of 35 miles an hour. It is equipped for 1,000 feet of regular fire hose, in addition to the 250 feet of chemical hose. There is a 40-gallon tank for the chemicals.

### Combination Performs Well.

Rome, N. Y.—The official tests of the new motor combination pumping engine and hose car have been completed. With the 1½-inch tip 700 gallons of water were delivered. A 2-inch tip was put on and 810 gallons of water were delivered with a nozzle pressure of 46 pounds. The second test used three single lines, each 100 feet in length, with 1-inch nozzle tip and two 1½ nozzles. At another test a stream was shot 206 feet into the air. Among those present at the test from out of town were Chief D. J. Sullivan and Assistant Chief Frank P. Breitenberg, Jr., of the Utica fire department, Fire Chief Frank Ernenwein, Mayor J. H. Rice, Aldermen Herbert Cramer and Charles Cleary and Torey Cutthers of Oneida, Fire Chief Herbert Moody of Sherrill and L. V. Shepherd of Buffalo. Among the Rome officials who witnessed the test were President of the Fire and Police Commissioners H. C. Wiggins, Commissioners Hower and Besley and Mayor Midlam. The tests were in charge of Fire Chief Bower. The new apparatus has a pumping capacity of 800 gallons of water per minute. The power for driving the car and also the pump is developed from a 100 horsepower six-cylinder motor. This motor is capable of driving the car at a rate of 60 miles an hour, but a speed of 30 miles is the limit at which it will be driven through the city streets. The hose compartment has a capacity of 1,200 feet of 2½-inch hose. Solid rubber cushion tires are used on the wheels. The machine is equipped with all the necessary fire-fighting kit and tools and the carrying capacity is seven men.

#### Auto for Water Department.

Springfield, Ill.—In order to be able to answer complaints the same day they are received, the city water department has purchased a motor service wagon. The horse-drawn vehicle will now be dispensed with. Superintendent Walter Reid of the water department expects the efficiency of the department to be greatly increased by the new addition.

#### Seventh Fire Auto for Allentown.

Allentown, Pa.—The Allen fire company No. 7 has received its new motor chemical truck, the seventh piece of motor apparatus in the city's fire department. The new chemical is a Mack truck and was made at the local plant of the International Motor Car Company. It has a powerful 48 h.p. motor which will develop sixty miles an hour. The truck is equipped with the requisite fire fighting apparatus, including small chemical hand extinguishers and two thirty-five gallon tanks. The approximate weight of the truck, completely equipped, is five tons.

### GOVERNMENT AND FINANCE

#### Waite to Train City Managers.

Dayton, O.—It is announced that City Manager Henry M. Waite will shortly open a school for the training of young men to become city managers under the commission-manager form of government. According to his plans, a system of scholarships will be devised. No pay will be attached to the proposed institution.

#### Memphis Officials Fight "Ouster."

Memphis, Tenn.—Denying all the allegations in the "ouster" bill filed against Mayor Crump, Commissioner Utley and Inspector Perry, the defendants in the suit have filed an answer in the chancery court. They deny that any person has been selling liquor in the city of Memphis with the knowledge and consent of the city officials, but on the other hand allege that Inspector Perry, who was given charge of the suppression of the liquor business in Memphis, did his duty to the best of his ability, arrested many violators, and in many instances destroyed stocks of liquor of the violators and drove many of them out of business entirely. Defendants in their answer do not claim that Inspector Perry has completely broken up or put an end to bootlegging, but say he has done as much to accomplish this end as could be accomplished by anyone.

#### "Painful Economy" for New York.

New York, N. Y.—Mayor Mitchel has announced "a program of painful and irksome economy." "It is," says the Mayor, "the necessary direct result of the act of the state legislature in laying a fearful burden of over \$13,000,000 on the people of the city." The tax budget committee is applying the principles of salary standardization laid down by the Board of Estimate and Apportionment's Bureau of Standards. This means that all positions which by any expedient can be dropped will be eliminated, all overpaid positions will be reduced to the maximum allowable under the standard rates approved by the Bureau of Standards for the group within which the position falls; all underpaid positions will be increased to the minimum allowable under the standard rates approved by the Bureau of Standards for the group within which the position falls. The taxpayers of the city are confronted with a serious situation. The budget for 1915 amounted to \$199,000,000 because of certain factors, such as the cost of the emergency \$100,000,000 loan, the extraordinary snow removal of the preceding winter, the largely increased amount of uncollectible taxes, the increase in debt charges, and the increased appropriations demanded by and allowed to the Board of Education. The increased services rendered by the city and the new policy of cutting down the debt by carrying each year in the budget the cost of permanent improvements have inevitably raised the budget and taxes.

The State legislature at its last session granted the city no relief by ways of new and additional income, but imposed a direct tax of upwards of \$13,000,000. If, therefore, the budget of the city for all purposes could be kept to

\$199,000,000 by the exercise of the most rigid economy, the state tax would still bring the total tax budget for 1916 to \$212,000,000. Increases must be allowed to charities, correction and police in order that they may properly discharge their duties. In the department of correction the average daily census of inmates has increased in a little over a year by about 2,000. As it costs \$244 to care for each prisoner, more than \$400,000 will be needed in 1916 to provide for this increase in the census. In the department of charities it is estimated that there will be an increase in the average daily census for next year of about 2,000 inmates. In the police department mandatory salary increases must be granted. Furthermore, during 1915, additional requirements for police service in the rapidly growing sections of the city made it necessary to obtain revenue bonds to pay for the addition of 200 men to the force. It is planned that the 1916 budget, as far as city departmental allowances are concerned, will be between \$3,000,000 and \$5,000,000 less than the 1915 budget. It has also been decided to increase the personal tax valuations from the present \$340,295,560 to about \$4,000,000,000. All single men owning \$1,000 worth of property or more will be liable. Married men having less than \$1,250 will be exempt, but all others will be taxed. Only personal property upon which a tax is paid elsewhere, or which can be shown to be exempt by specific law, will be overlooked by the assessors. The tax is to be aimed specifically at big business houses which have no real estate and which have previously been assessed very little.

#### Will Not Abandon Commission Form.

Jacksonville, Ill.—At a special election the commission form of government was voted to be retained in preference to a return to the old aldermanic form of rule by a vote of 2,773 to 1,442.

#### New Charters—Adopted and Rejected.

Marlin, Tex.—After indifferent voting, returns showed 131 in favor of a new city charter and 70 against. Commissioners were elected to draft the charter.

Hubbard, Ore.—At a special election, Hubbard adopted a new charter by a majority of 21, with 101 votes recorded. The charter gives the council full power, and provides that the council shall call a special election for the purpose of voting money for the construction of waterworks and similar improvements.

Biddeford, Me.—At a quiet election this city defeated, by 1,132 to 191, a charter amendment which would have abolished the common council and substituted a single board of 10 aldermen, chosen three at large and one from each of the seven wards of the city. Every ward in the city voted decisively against the proposed new form of government. The measure was strongly opposed by the French speaking citizens of the city on the ground that it would reduce their representation in city affairs.

#### Boston's Financial Problems.

Boston, Mass.—For the seven months of this year ending September 1 the city of Boston departmental running expenses are figured as \$366,465.87 more than those of the corresponding period of a year ago. Of this increase, \$221,848.46 is for departments under the control of the mayor, and \$144,617.41 is for the increase registered by the police and school departments and the licensing board. In the overseers of the poor department the increase to September 1 over last year is \$130,067.27, and is almost entirely due to the working of the widows' pension act and the care of homeless people during the winter. One of the serious financial problems of the future will be that growing out of the widows' pension act. The disbursement may exceed half a million dollars yearly. Another serious problem in department expenses is that of hospitals, the almshouse and children's institutions work. Though the expenses of the consumptives' hospital department have been reduced about \$15,000, the city hospital work has increased nearly \$50,000. The soldiers' relief, park and recreation, schoolhouse, health, fire, and cemetery departments are on the upward trend. The police department has spent thus far this year \$1,591,181.98, com-



pared with \$1,565,274.56 last year during a similar period. The school committee has spent this year \$3,559,308.74, compared with \$3,442,540.76. The debt-incurring power, which on February 25 was estimated at \$3,740,396, is now reduced to \$925,896. The gross funded debt of the city has shown an increase of \$1,839,673.34 since the beginning of the year, making the total \$126,645,197. The net funded debt has increased \$1,898,670.24 since January 31, making the total \$83,873,247.19.

#### More Nashville Officials Exposed.

Nashville, Tenn.—That one of the city officials maintained a chicken ranch at the waterworks plant at city expense; an official used city employees to improve property; detectives sought extra pay for making arrests, and police officers were used for election purposes, during which time they did not draw full pay, was some of the evidence presented by counsel for the taxpayers in the city hall probe. Witnesses, some of them negro employees past and present of the city waterworks plant, testified to having graded some property belonging to Chief Engineer Tolmie, and receiving pay only as city employees. Others testified that chickens were kept there and fed at city expense. Skilled employees, it was also testified, constructed an electric cooker and concrete roller machine. Another witness said that large quantities of brass pipe in long lengths were brought to the plant, sawed up into short lengths, and they then "disappeared." Witness declared that only a very small quantity was used at the plant.

#### The Hibbing Case in Court.

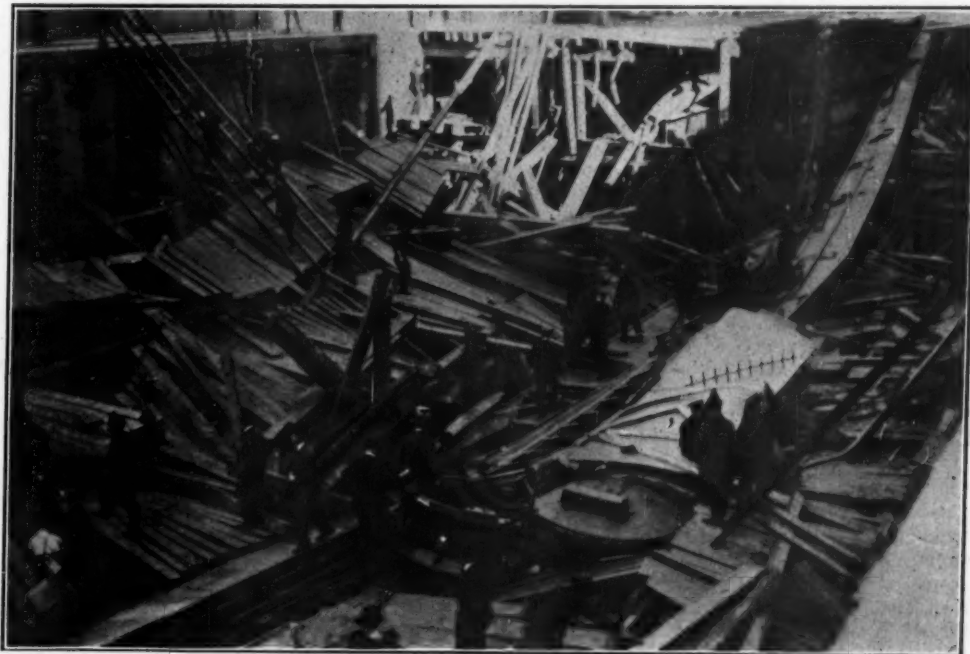
Hibbing, Minn.—Taxes and penalties aggregating \$67,794, covering all mining property at Hibbing affected by state leases, have been paid into the county treasury by the Allendar Iron Mining Company and the Pickans-Mather Company, two of the eleven operators which have refused to pay their taxes on their Hibbing holdings for the current year, on the ground that the amount levied for village purposes is exorbitant and invalid. The action of the two mining companies is taken to mean that the operators are taking no chances with the question of state leases, but it is not regarded as any indication that they have abandoned their fight against the alleged extravagance of Mayor Power's administration. Except for the \$67,794.84, no portion of the \$1,500,000 taxes remaining unpaid since June 1 last will be turned into the county treasury at this time, it was said. Of the total amount paid, \$61,631.67 represents taxes and \$6,163.17 penalties. Practically half the total amount was paid in village orders, which will mean that in the apportionment of the taxes the village of Hibbing will not gain any tax but \$30,000 in cancelled paper. Mayor Powers, however, and the other officials are much pleased with the change of attitude of the two companies. Meanwhile, the legal battle has been started before Judge Bert Fesler in district court, the hearing having been opened in the injunction proceedings of the Oliver Iron Mining Company, the Mahoning Steel & Iron Company and the Shenango Furnace Company against the village officials of Hibbing, restraining them from carrying out a paving project. The plaintiffs averred that when Mayor Victor L. Power took office two years ago an era of extravagance and exorbitant expenditures was inaugurated which continued until the restraining order was issued by Judge Cant this month.

## RAPID TRANSIT

### Another Cave-In in New York Subway.

New York, N. Y.—Three days after the subway cave-in in which seven persons were killed and eighty-five injured, a similar disaster occurred on Broadway. A section, 125 feet long, of the wooden street surface caved in 45 feet killing a woman and injuring five men. The woman was a passenger in a taxicab which fell into the excavation, and an electrician working underground was badly hurt by pinning falling on him. Thrilling rescues marked the accident. The death toll would have been much greater but for the presence of mind of a street car motorman who stopped his car containing a score of passengers at the brink of the chasm and backed it up out of danger. Engineers believe that this second accident was due to the sliding of rotten mica rock which supported the shoring. Minor accidents, with two injuries—the sinking of wheels of trucks through the wooden surface—occurred in two other places.

Following these disasters which have shaken up city and state officials and contractors, several investigations have been instituted to discover their causes and to plan means of insuring the safety of the whole structure over the new subway excavations. Following the second occurrence all traffic in dangerous places was stopped, causing much inconvenience. The mayor has appointed an advisory commission of engineers to co-operate with Commissioner of Accounts Walstein, with a view to examining all subway construction under temporary decking. The mayor's committee consists of twelve engineers, eleven of them now in the city employ and the other formerly a consulting engineer of the Borough of Brooklyn. The chairman is Nelson P. Lewis, Chief Engineer of the Board of Estimate. The "squad commanders," are E. T. Goodrich, consulting engineer of the Borough of Manhattan, and J. W. F. Bennett, consulting engineer of the Bronx, and the other members are George W. Tilson, who holds a similar place in Brooklyn; Eugene Stern, Chief Engineer of Highways in Manhattan; Merritt H. Smith, Amos L. Schaeffer, consulting engineer of the Borough of Manhattan; Edwin F. Fort, Chief Engineer of Sewers in Brooklyn; Inspector John R. Healy of the Fire Department, Benjamin F. Welton, Chief of the Efficiency Bureau of the Commissioner of Accounts; Francis W. Ferry, Engineer of the Bridge Department, and R. Walter Creuzbaur, a consulting engineer in private practice. The lay members of the Committee, besides the mayor himself and Commissioner of Accounts Walstein, are Chamberlain Henry Bruere, Police Commissioner



Courtesy Brooklyn (N. Y.) Daily Eagle.

THE FIRST SUBWAY CAVE-IN.

Woods, Fire Commissioner Adamson, and Mr. Rousseau. The Public Service Commission has retained Henry H. Quimby, Chief Engineer of the Philadelphia subway; Edmund B. Davis, chief engineer of the Boston subway, and D. C. Jackling, mining engineer of Salt Lake City, San Francisco and New York to examine all present and future plans of the subway work. District Attorney Perkins is conducting an investigation and is awaiting a report from H. de B. Parsons, his engineer and Assistant District Attorney J. Ward Follette before instituting criminal proceedings against those found responsible. As yet no plausible explanation of the first accident has been given. Coroner Israel Feinberg is also conducting an investigation. The United States Realty and Improvement Company had the contracts in all the sections where the three worst accidents occurred.

#### City Demands Railway Tax.

Newport, Ky.—The Newport city commissioners have instructed city solicitor Otto Wolff to draw up an ordinance requiring the operating street railway company to pay an annual license of \$12,000 per annum, with 10 per cent. interest on default payments, for the use of the streets of the city. The franchise has expired and the cars have been operating without legal right over the streets of Newport, and the commissioners are determined that the city shall derive some revenue. An annual rental of \$1,000 per mile is asked.

#### New Jersey Jitneymen to Organize.

Trenton, N. J.—In order to protect their interests, the various jitney organizations and owners in the state have decided to form a state federation. A meeting to form the organization and to map out favorable legislation will be held in the near future, probably in this city. The Jitney Service Association of Newark has formed a mutual liability indemnity association for the purpose of insuring owners on a commonwealth plan, and fully \$50,000 worth of premiums have been written up.

#### City Sues for Fines for Overhead Wires.

Terre Haute, Ind.—Argument has been heard in the city court on the motion made by the attorneys for the traction company to require the city to make more specific its complaint in the case in which it is sought to fine the company for failure to comply with a city ordinance passed in November, 1913, requiring its wires to be placed underground. The penalty, on conviction, is a fine of \$50 a day for each day the law is violated. One of the company's contentions is that the ordinance gives authority to the city engineer in issuing permits that is not justified by law or the constitution. It is demanded that the city show whether the poles and wires complained of were up when the ordinance was adopted, or have been erected since in violation of it. The city contended that the points raised were proper in a demurrer, but not in a motion to make a complaint more specific. The case is under advisement by Judge Newton.

#### City Enforces Good Car Service.

Des Moines, Ia.—Street car difficulties, dating over a period of fifteen years, has been practically ended by the acceptance by the street car company of the city's proposition that no dividends be paid by the company until the city has as good car service as any other city of its size.

#### Override Mayor's Jitney Law Veto.

Newark, N. J.—The veto sent by Mayor Raymond to the board of works disapproving the jitney regulating ordinance has been overridden by a majority vote of the board. The Jitney Service Association is waiting until the council takes up the question of a licensing ordinance before taking legal steps.

### MISCELLANEOUS

#### Portland's Municipal Dance Hall Opened.

Portland, Me.—Two thousand people, including Governor Oakley C. Curtis and Mayor William M. Ingraham, were present at the celebration of the opening of the city's municipal dance hall. Manager Frederick M. Prescott is in charge.

#### Municipal Research Library for Dallas.

Dallas, Tex.—Establishment of a municipal research section in the Dallas Public Library is planned by Mayor Lindsley in co-operation with the library authorities. There are to be in the library all available municipal records and also magazines and periodicals bearing on municipal work. Copies of budgets adopted by the city and other data will be a feature of the division.

#### Plan Municipal Bakery.

Niagara Falls, Ont.—A by-law authorizing the city council to guarantee the bonds of a large baking company, now being formed by prominent men of this city, will be passed upon by the voters next January, if present plans do not miscarry. The company, which is to be capitalized at \$50,000, will sell bread at cost prices, and in return for concessions in the way of low tax and water rates from the city will share a portion of its profits with the municipality and give the city the right to buy out the bakery upon three months' notice. The company will provide the indigent committee of council with 3,000 loaves of bread free each year. It will also divide the profits over and above 6 per cent on the invested capital of \$50,000 equally with the city. The proposed baking plant will, to all intents and purposes, be operated as a municipal utility. The company plans to sell bread at a very small margin of profit. Mayor Clendenning is in favor of the project as he hopes to bring down the "war prices" for bread being charged by the bakers in the city.



Courtesy, Portland (Me.) Evening Express and Advertiser.  
PORTLAND'S MUNICIPAL DANCE-HALL.



## NEWS OF THE SOCIETIES

### Calendar of Meetings.

**Sept. 27-Oct. 1.—PACIFIC COAST FIRE CHIEFS' ASSOCIATION.**—Annual convention, San Francisco. Secretary, Harry W. Bringham, Fire Marshal, Seattle, Wash.

**Sept. 27-Oct. 1.—INTERNATIONAL GAS CONGRESS AND AMERICAN GAS INSTITUTE.**—Convention, San Francisco. Secretary, George C. Ramsdell, 29 West 39th St., New York City.

**Sept. 29-Oct. 1.—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION.**—Thirty-sixth Annual Convention, Haverhill. Secretary, D. Arthur Burt, Taunton.

**Oct. 4-6.—NORTHWESTERN GOOD ROADS CONGRESS.**—Annual Convention, Cedar Rapids, Ia. Secretary-treasurer, J. P. Keenan, Milwaukee, Wis.

**Oct. 4-9.—AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—Convention, San Francisco. Secretary, E. B. Burritt, 8 West 40th St., New York City.

**Oct. 5-8.—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION.**—Annual Convention, Philadelphia. President, Miles S. Humphreys, Pittsburgh, Pa.

**Oct. 6-8.—NATIONAL HOUSING ASSOCIATION.**—Minneapolis, Minn., Secretary, Lawrence Veiller, 105 East 22d St., New York City.

**Oct. 11-13.—KANSAS MUNICIPAL LEAGUE.**—Annual convention, Hutchinson.

**Oct. 11-15.—NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.**—Annual convention, Dayton, O. Secretary, Will P. Blair, B. of L. E. Bldg., Cleveland, O.

**Oct. 12-15.—AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.**—Annual convention, Dayton, O. Secretary, Charles Carroll Brown, 703 Wulsin Bldg., Indianapolis, Ind.

**Oct. 18, 19.—ELECTRIC VEHICLE ASSOCIATION OF AMERICA.**—Sixth annual convention, Statler Hotel, Cleveland, O. Secretary, 29 West 39th street, New York.

**Nov. 9-12.—ATLANTIC DEEPER WATERWAYS ASSOCIATION.**—Eighth Annual Convention, Savannah, Ga.

**Nov. 17-19.—NATIONAL MUNICIPAL LEAGUE.**—Annual Convention, Dayton, O. Secretary, Clinton Rogers Woodruff, 705 North American Bldg., Philadelphia, Pa.

**Dec. 27-Jan. 8, 1916.—SECOND PAN-AMERICAN SCIENTIFIC CONGRESS.**—Washington, D. C., Department of State, Washington.

**Feb. 15-18, 1916.—SECOND NATIONAL CONFERENCE ON CONCRETE ROAD BUILDING.**—Secretary, J. P. Beck, 208 S. LaSalle St., Chicago, Ill.

### Pan-American Road Congress.

Road experts from the various states, as well as from Canada, Guatemala and Salvador, attended the Pan-American Road Congress held at the Municipal Auditorium, Oakland, September 13-19. The Congress was held under the auspices of the American Road Builders' Association and the American Highway Association. The Tri-State Good Roads Association held a separate session and then adjourned to meet with the congress, with which the Pacific Highway Association co-operated.

Governor Gates of Vermont, who was to have presided over the convention, was called home by the death of his mother. James H. McDonald, former highway commissioner of Connecticut, presided at the meetings.

The convention was opened with an address by Chairman MacDonald. Addresses at this session were made by John W. Stetson, representing Governor

Johnson, and A. E. Meath, representing Governor Ernest Lister of Washington, Governor James Withycombe of Oregon, Mayor John L. Davie of Oakland, James A. Barr, representing the exposition; President George W. Tillson of the American Road Builders' Association, and S. E. Brandt of the executive committee of the American Highway Association. More than 1,000 delegates attended this meeting.

A number of papers were read at the afternoon session, including one by Logan Waller Page, director of the office of public roads, United States Department of Agriculture, who advocated the placing of adequate power to supervise and regulate county bond issues in the hands of a central state highway department, as a solution of the problem of the evils of long-term bonds for short-term utilities.

S. E. Brandt, secretary of the State Highway Commission, Illinois, said that whereas freight rates have been reduced since 1837 nearly 90 per cent., due to railroad construction, yet during that time there has been practically no reduction in the cost of highway transportation, because of failure to appreciate its economic importance. The extent to which the Government should assist in road improvement, he said, should be commensurate with the importance of the project and with the amount of money required to carry it on.

Henry S. Graves, chief of the Bureau of Forestry, United States Department of Agriculture, said that the national forests should not be regarded as a separate Federal domain, administered only from the national standpoint and without reference to the needs of the local communities. He declared the Government's present plan of road building in national forests should be modified in order to make them serviceable to the people at the present time during the most serious pioneer stage of the region's development.

A. N. Johnson, highway engineer, Bureau of Municipal Research, New York City, said that a department must be provided by the state capable to advise and direct localities, and with authority to prevent unwise expenditures, as well as to supervise necessary improvements. "A highway law for a state should be passed that has been so carefully considered as to make it wholly unnecessary for the Legislature each year or two to tack on additions or make vital changes," he said.

Colonel E. A. Stevens, State Highway Commissioner of Public Roads, New Jersey, said in the near future the United States would build large improved road mileage and the cost for the country at large would greatly exceed that of any public improvement ever attempted, not excepting the Panama canal, and that an important com-

mercial advantage would ensue not only to the agricultural interests but to industrial development.

C. L. MacKenzie, president of the State Good Roads Association of Washington, spoke on "Federal Aid for Rural Districts."

MacKenzie said he is opposed to financial aid being given by the Government for the direct building of roads. He thought the present system of direction and education the best method, letting the states raise the money for building the roads by direct taxation.

At the Tuesday morning session George W. Tillson, president of the American Road Builders' Association, who presided, read the paper prepared by George W. Cooley, state engineer and secretary of the State Highway Commission of Minnesota, on "Road Drainage and Foundation." Mr. Cooley laid stress on the necessity of having a proper foundation. Failures of concrete roads were due in every instance on record to improper grading or to wet spots in the sub-grade. A higher first cost, if an honest cost, means lower taxes in the end.

Other speakers at the morning session were A. D. Williams, chief road engineer of West Virginia; E. S. Cantine, State Engineer of Oregon; Frank Douglas of the paving department of Baltimore; W. S. Gearhart, State Engineer of Kansas; Clifford Older, State Highway Department, Illinois.

Those who read papers and participated in the discussion at the afternoon session were Nelson P. Lewis, chief engineer of the Board of Estimate and Apportionment, New York City; J. F. Witt, Dallas, Tex.; W. I. Vawter, Medford, Ore.; B. A. Tome, Lodi, Cal.; A. B. Fletcher, State Highway engineer of California, and Prof. L. S. Smith, department of highway engineering, University of Wisconsin.

The annual banquet of the congress took place in the evening at the Hotel Oakland. Charles F. Stern, member of the California State Highway Commission, acted as toastmaster.

The speakers were former State Senator John W. Stetson, representing Governor Johnson; Mayor John L. Davie, Oakland; George W. Tillson of New York, president of the American Road Builders' Association; Colonel W. D. Sohler, chairman of the Massachusetts State Highway Commission; Samuel Hill, president of the Pacific Highway Association; Captain Walter Coggeshall, president of the Tri-State Good Roads Association; J. H. King, vice-president of the Oakland Commercial Club; J. E. Caine, managing director of the Commercial Club, and Newell D. Darlington, California State Highway Commissioner.

Road surfacing and the resurfacing of old roads, and street pavements, formed the topics of discussion at the Wednesday meeting, over which A. D. Gash, president of the Illinois State Highway Commission presided.

F. F. Rogers, State Highway Com-

missioner of Michigan, estimated that the United States has 2,300,000 miles of public wagon roads, about 10 per cent of which are improved, with about one and one-third per cent of the mileage substantially improved with state assistance.

W. D. Uhler, chief engineer of the state highway department of Pennsylvania, took for his topic, "Resurfacing Old Roads." The essential points in the work he instanced as being character and amount of traffic, the grades and the funds available for the work.

J. C. Little of Maryland also read a paper on the subject. The third paper was by Curtis Hill, City Engineer of Kansas City, Mo., on "Street Pavements."

The congress adopted a resolution at the Thursday session calling on Congress to investigate the feasibility of constructing a system of military highways throughout the country.

The original resolution, as reported and recommended by the committee on resolutions, called for the indorsement of a plan to submit to the national government the question of investigating the practicability of building a military highway through California, Oregon and Washington from the Mexican to the Canadian line. This road would cost \$50,000,000. Delegates from the interior of Illinois, headed by A. D. Gash, state highway commissioner from Springfield, argued that the word "military" should be left out and that the motion should be made broader so as to include all sections of the United States. A compromise was finally reached.

G. P. Coleman, state highway commissioner of Virginia, and J. E. Maloney, secretary engineer of the Colorado state highway commission, told the road congress that the placing of convicts at work on the state roads would go far toward providing a solution of the existing prison problem.

The papers at the morning session included: "The Merit System in Highway Work," by Richard Henry Dana, which in his absence was read by Samuel Hill; discussion, Dr. J. H. Pratt; "The Determination of Justifiable Outlay for Specific Cases of Highway Improvement," Clifford Richardson; discussion, Henry Welles Durham; "Convict Labor for Highway Work," G. P. Coleman. The afternoon papers were "Motor Traffic, Its Development, Trend and Effects," Elmer Thompson; discussion, Warren Gould and W. G. Chanslor; "Equipment for Highway Work," A. H. Blanchard; discussion, H. J. Kuelling; "Load and Tire Effects and Regulation," F. H. Joyner; discussion, Prof. T. R. Rigg and C. A. Clarkson.

The American Association of State Highway Officials, at a special meeting approved the plan for asking Congress to appropriate the sum of \$25,000,000 a year for a period of ten years.

The states having representation at the meeting of the association included

Arizona, California, Oregon, Washington, Minnesota, Michigan, Illinois, Louisiana, Pennsylvania, North Carolina, West Virginia, Indiana, District of Columbia, Kansas, Oklahoma and Connecticut.

In order to have the final afternoon free to visit the exposition the Pan-American Road Congress concluded its business sessions at the Municipal Auditorium Friday morning. Colonel W. D. Sohler, chairman of the Massachusetts highway commission, presided.

The following papers were read: "Comparisons of Traffic and Their Economic Value," Linn White, chief engineer, South Park Commissioners, Chicago; discussion, Colonel Sohler; "Maintenance, Materials and Methods," A. W. Dean, chief engineer State Highway Commission of Massachusetts; "Dust Suppression and Street Cleaning," W. H. Connell, chief of the bureau of highways and street cleaning, Philadelphia, Pa. Connell declared that the present street cleaning machinery was crude and would soon be supplanted by the vacuum method.

Among the speakers were Dr. Alfonso Quinonez of San Salvador, and Fernando Cruz of Guatemala, who told of road conditions in their respective countries.

Charles F. Stern, member of the California State Highway Commission, presented a paper epitomizing the lessons of the convention.

Besides the state of Louisiana places anxious to secure the next convention included Rochester, N. Y., Boston, Mass., and Providence, R. I. The question will be decided later in the year.

For the purpose of "bringing into closer relation the efforts for road improvement in the eastern and western portions of the United States," the American Highway Association at its final session appointed a committee of seven to work on a plan for consolidation of the four organizations comprising the Pan-American Road Congress.

These include the American Good Roads Association, the American Highway Association, the Tri-States Good Roads Association and the Pacific Highway Association.

The committee which will take up the question with similar committees from the other organizations will report to the Board of Directors previous to the next convention. The committee includes:

S. E. Brandt, Illinois; W. R. Roy, Washington; A. B. Fletcher, California; W. D. Sohler, Massachusetts; T. H. MacDonald, Iowa; W. E. Atkinson, Louisiana; G. P. Coleman, Virginia; F. F. Rogers, Michigan.

The American Highway Association elected as president Fairfax Harrison of Belvoir, Va., president of the Southern railway, and chose other officers as follows: Vice-president, L. W. Page, Washington, D. C.; treasurer,

John Burke, Washington. A nominating committee headed by R. H. Gillespie of New York was appointed by the American Road Builders' Association.

#### League of Third Class Cities.

The sixteenth annual convention of the League of Third Class Cities was held at Reading, Pa., August 31 to September 2. Johnstown was selected as the place for the 1916 convention.

Mayor Ira W. Stratton of Reading, in his address of welcome declared that the third class cities of the state have been unfortunate in securing the passage of beneficial legislation because members of the legislature had no knowledge of the needs of these cities. Mayor Stratton is president of the league. Mayor Walker responded, and the remainder of the session was taken up by discussions of Reading's water, sewer and garbage disposal systems. Other addresses were delivered by Peter S. Holl, superintendent of public safety, on the "Garbage Problem," and Councilman Jacob H. McConnell, on "Street Construction." Councilman B. Frank Ruth spoke on "Reading's Park System."

Morris L. Cooke, director of public works, Philadelphia, in his speech said: "In picturing a city or picturing a problem, your work in your cities is essentially the same as mine in Philadelphia. It is a problem in home building. I look upon my job as a problem in home making. Cleanliness, (Continued on page 519.)"

## PERSONALS

Governor Ferris has appointed the following delegates to represent Michigan at Northwestern Road Congress at Cedar Rapids, Ia., October 4, 5, 6 and 7: P. T. Colgrove, A. A. Anderson, John C. Ketchum, Hastings; Frank Hamilton, Traverse City; Dallas Boudeman, W. M. Bryant, Kalamazoo; N. P. Hull, Diamondale; J. Edward Roe, Frank F. Rogers, Lansing; D. H. Day, Glen Haven; Wm. H. Anderson, John I. Gibson, Grand Rapids; T. F. Marston, Bay City; H. W. Reade, R. P. Mason, Escanaba; H. K. Gustin, Alpena; Dr. Wm. De Kleine, Grand Haven; Richard M. Hoffman, Manistee; C. H. Haggerson, Menominee; James Couzens, Edward N. Hines, John S. Haggerty, Detroit; A. C. Joplin, L. E. Adams, Munising; Wm. Wissing, Wm. J. Cleary, St. Joseph; Frank Mahrle, Marshall; C. V. Carpenter, Iron Mountain; R. Martin, Houghton; A. L. Burridge, Crystal Falls; Hugh Woodworth, Jackson; J. A. Broad, Newberry; D. A. Brotherton, St. Ignace; Wm. P. Rosso, W. J. Lehner, Mt. Clemens; V. S. Hillier, Ishpeming; J. W. Lentz, Monroe; W. S. Antisdale, Muskegon Heights; John Adams, Leonard; Martin De Gloppe, Pontiac; D. D. Worcester, Port Huron; W. S. Bilbis, Ann Arbor; Jas. K. Flood, W. R. Roach, Hart.

Wise, Charles C., former deputy fire commissioner of New York, and in charge of the Brooklyn district, died at Sayville, L. I., aged 39.



# NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

## PACKARD FIRE TRUCK

With 3-Ton Chassis, for Parnassus, Pa.

The borough of Parnassus, Pa., has departed somewhat from the usual in the installation of a Packard 3-ton chainless motor truck for its fire department service, instead of the more common lighter duty chassis. The chassis of the new vehicle is of Packard standard with the exception that the motor governor is adjusted to allow for a speed of 25 miles per hour, this speed being considerably in excess of that designated for a three ton truck in ordinary commercial service. Before purchasing the councilmen of Parnassus studied the performance of a Packard truck which has been in the service of the North Braddock, Pa., fire department for four and one-half years and has been out of service only one week during that time. In the case of Parnassus, the officials feel that dependability is the most essential feature in their apparatus, as all reliance is placed on the single truck.

Since it carries about nine-tenths of its load on the rear axle, the truck is capable of the maximum tractive effort in slippery going and on heavy grades. With this ability to get over the ground, is combined the advantage of the most effective brakes. Centralized control enables complete mastery of the vehicle from the driver's seat. The provision for electrical cranking and lighting means greater safety, economy and facility of operation. The truck has left drive. The worm drive is of the improved Packard type.

The motor consists of four "L" head water-cooled cylinders cast en bloc and gives 32.4 h.p. A.L.A.M. rating. The valves are tungsten steel, enclosed. The crank shaft is of drop forged, heat treated high grade steel mounted in four babbit-faced, bronze-backed bearings. The crank case is in two parts, entire lower section removable without disturbing crank shaft bearings. Carburetor is of Packard design, automatic, complete control. Ignition is by Bosch high tension magneto, duplex system. Lubrication is by pressure gear pump, in lower half of crank case, which is driven from cam shaft by worm gear.

The transmission is supported at three points by two pressed steel members; it is centrally located and connected with clutch by means of shaft with two universal joints; power to worm shaft in final drive through shaft and universal joints. Clutch is Packard dry plate type, completely enclosed, and is unaffected by atmospheric conditions. A left hand gear shifting lever operating in a Packard semi-selective quadrant, gives three speeds forward and one reverse. Steering gear is worm and wheel.

The frame is of channel rolled steel, all joints riveted to angle sections and reinforced by gusset plates. Wheels are 36 inches in diameter, heavy artillery type. Service brake consists of two wire-woven asbestos lined contracting shoes. The two emergency brakes are internal expanding segments acting on drums on rear wheels.

The equipment of this truck is ex-

ceptionally complete, including two 35-gallon polished copper chemical tanks, Champion style, two hundred feet of 3/4-inch chemical hose, one shut-off nozzle, one hose reel, two extra acid receptacles and holders, soda bag, pressure gauge, all necessary wrenches and trunnion bearings, one Detroit door opener, two dash signal lights, two head lights, one swivel search light, all operated by electricity, special speedometer, enclosed gear ratchet horn, 24 ft. extension ladders, and a complete set of machine tools.

The truck, which is shown in the accompanying illustration, was made by the Packard Motor Car Company, Detroit, Mich.

## FIRE SIREN.

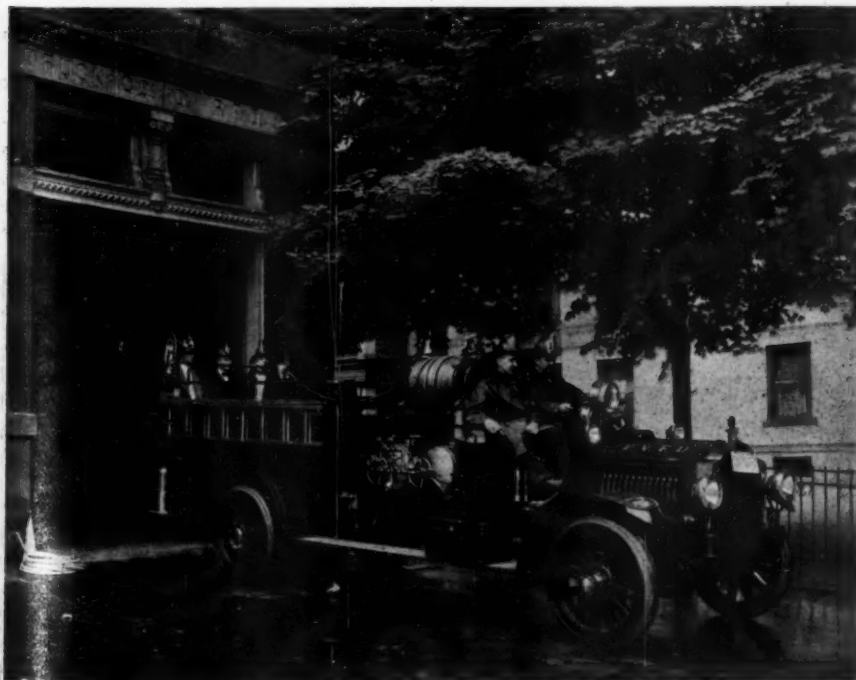
### Electrically Operated Signal.

The Denver Siren is a motor-driven siren designed to give a distinctive sound and to allow of operation from a distance, for instance by a telephone operator. As generally used, in the case of fire alarm for small towns, the switch is at the hand of the telephone central operator who sounds the alarm as soon as the call is received and then notifies the department of the exact location of the fire.

The revolving part of the siren, or motor, is made of aluminum and the outside part, or stator, of cast iron. The motor and coupling are covered by a close fitting hood. The siren gives the best results when equipped with a three-phase induction motor, although a single-phase motor can be used. When the switch is closed, the pitch increases quickly from the deepest audible sound made by about 16 vibrations a second to the sound produced by 700 vibrations, or about the same as "high C." The switch can then be opened and closed at intervals of two to five seconds and the pitch varied at will to give a siren effect. The sound is penetrating, and while not equal in volume to that of a steam whistle, is enough for all ordinary purposes.

The Denver siren can be placed wherever most convenient and operated by a remote control switch from switches at the most convenient places, whereas a steam whistle must be at the power plant. It is advantageous compared with a compressed air whistle which is dependent on air pressure and cannot be used for a second alarm until the air tank is refilled. It is, of course, much superior to the ordinary fire bell.

The siren is made in a number of types. The Duplex siren uses a 3 h.p. motor and the Quadruplex a 5 h.p. one. The type B siren is coupled direct to a motor of standard design, turning at 1800 r.p.m. Compared with the type A



PACKARD FIRE TRUCK FOR PARNASSUS, PA.

siren the Duplex produces twice the volume of sound and the Quadruplex four times the volume. A single type B siren with a 2 h.p. motor may be obtained in which the wheel is mounted on the shaft of the motor and which gives a volume of sound slightly greater than the type A. The dimensions of the Duplex are 47 by 21 inches and of the Quadruplex 62 by 21. The height in each case is 24 inches.

The Duplex siren is shown in the accompanying illustration. These Denver sirens are made by the Hendrie & Bolthoff Manufacturing and Supply Company, Denver, Colo.

## INDUSTRIAL NEWS

**Cast Iron Pipe.**—Chicago—An award of 1,000 tons has been made at Kansas City to the American Cast Iron Pipe Company. At Middletown, O., 350 tons is to be bought, and at St. Charles, Ill., 285 tons. Prices have been advanced 50 cents per ton. Quotations: 4-inch, \$27; 6 inch and up, \$25; Class A, \$1 extra. Birmingham.—Demand continues satisfactory, with the enlarged plant of the leading interest at Bessemer a taker of several orders for the Middle West. The output is increasing but is well taken care of at the advance of several weeks ago. Quotations: 4-inch, \$21.50; 6-inch and up, \$19.50. New York.—Bids were opened Sept. 24 for 350 tons for use at the Panama Canal. Jersey City, N. J., is expected to be in the market shortly for a large quantity of 48-inch flexible joint pipe to be laid across the Hackensack Meadows. Quotations: 6-inch, Class B and heavier, \$24.50 to \$25; Class A, \$25.50 to \$26.

**Lead.**—Lead is quiet but steady. Quotations: New York, \$4.50; St. Louis, \$4.325.

**The First National Exposition of Chemical Industries** was held at the Grand Central Palace, New York, September 20-25. During the week meetings were held by the New York sections of the American Chemical Society, and the American Electrochemical Society and the American Institute of Chemical Engineers. Among the addresses delivered were: "Asphalt," and "The Brownian Movements of the Colloids of Trinidad Asphalt," by D. T. Pierce of the Barber Asphalt Company; "Solution of Smoke, Dust and Fume Nuisance by Electrical Precipitation," by Linn Bradley of Research Corporation; "Efficiency in the Conservation of Our Natural Resources," by Harrington Emerson; "Explosives," by J. L. Taylor, of the Bureau of Explosives; "Paint," by G. B. Heckel of the New Jersey Zinc Company; "The History of Cement," by Percy Wilson, Secretary of the Association of American Portland Cement Manufacturers; "The Development of Refined Tars for Use in Road Construction and Maintenance," by Philip Sharples of the Barrett Manufacturing Company.

The United States Government exhibits were particularly interesting and complete. The departments and bureaus exhibiting were: The Geological Survey, the Forest Service, the Bureau of Chemistry, the Bureaus of Plant Industry and Animal Industry, the Bureau of Soils, and the Bureau of Foreign and Domestic Commerce. The Bureau of Mines showed a very popular exhibit of the Rittman process for making toluol and benzol and gasoline. The exhibit of the Bureau of Standards was most comprehensive, showing, for example, the work of the bureau in standardizing the manufacture of iron and steel, in developing tests for cement and concrete, lime and plaster, bituminous materials, oils and gas and in studying pyrometers, gas and water meters, and other instruments. The Bureau of the Census also showed its work. There were many interesting industrial exhibits, including the following:

American Bitumastic Enamels Co., 17 Battery Place, New York.—Protective coating for reservoirs, tanks, etc.

E. T. Du Pont De Nemours Powder Co., Wilmington, Del.

Thomas A. Edison, Orange, N. J.—Edison storage battery.

Hardinge Conical Mill Co., 50 Church street, New York.—Crushing machinery.

Lead Lined Iron Pipe Co., Wakefield, Mass.—Lead and tin lined iron pipe.

J. L. Mott Iron Works, 118 Fifth avenue, New York.

The Research Corporation.—Smoke precipitation devices.

Thwing Instrument Co., 445 North 5th street, Philadelphia, Pa.—Pyrometers and other instruments.

Toch Bros., 320 Fifth avenue, New York.—Protective paints and coatings for steel and concrete.

United Gas Improvement Co., Philadelphia, Pa.—Road oils, including "Ugite."

United Lead Co., 111 Broadway, New York.—Lead and tin lined iron pipe.

Life Saving Devices Co., 180 North Market street, Chicago, Ill.—The Lungmotor.

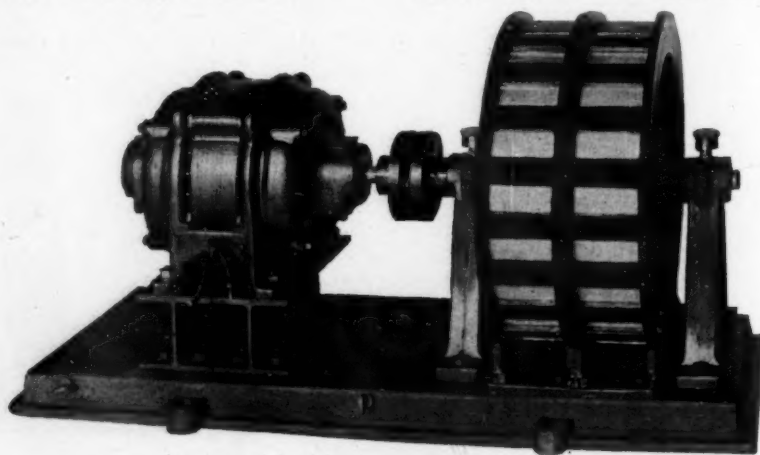
The Praeger Oxygen Apparatus Co., 422 First avenue, Pittsburgh, Pa.—Pulmotor and oxygen helmets

**A Standardized Rating of Batch Mixers.**—Up to the present time there has not been any standard method of rating batch mixers. Some mixer manufacturers rate their machines by their capacity in mixed concrete, while other manufacturers rate them by their capacity in loose unmixed material. A mixer having a batch capacity of 8 to 9 cubic feet of unmixed sand, stone and cement will hold only about 6 cubic feet of mixed concrete per batch. For this reason the term three, four or nine foot mixer has never had any real definite significance.

The National Association of Mixer Manufacturers have taken steps toward remedying this difficulty by adopting a resolution providing for the uniform rating of batch mixers. This resolution provides that the members of the association in future catalogs and circulars shall specify the capacity of their mixers as "size of wet, mixed batch," and not otherwise. The resolution further provides that the dry unmixed capacity of a mixer may be approximated as one and one half times the wet mixed batch, assuming the use of cement, sand and one and one half inch crushed stone, with 1 3/4 gallons of water per cubic foot of mixed concrete. The members of the association further agree not to use the dry batch rating in their correspondence, advertising, etc., unless the standard wet batch rating were used also and with equal prominence.

It is felt that the step just taken is a very desirable one, one that will prove beneficial to all contractors, mixer manufacturers, and every one in fact connected with the concrete and cement industry. A contractor can now arrive at a real comparison between mixers, not only in price but in capacity. This would have been much more difficult without a standard rating.

The H. W. Johns-Manville Co. was in these pages last week erroneously stated to have moved its main works. The change made is simply the moving of its offices to a fine building at Michigan and 18th street, Chicago. The new premises were open for business on September 7. The main floor is divided up into sales showrooms for



DENVER FIRE SIREN



the many products handled by the Johns-Manville Company. There is a finely equipped automobile service station, where the motorist may drive right in and have his car equipped with any of the Johns-Manville auto specialties. The arrangement of the executive and general offices on the second floor is particularly well planned, and the building is centrally situated for the needs of the various trades with which the Johns-Manville Company has business relations.

The Goulds Manufacturing Co., Seneca Falls, N. Y., well-known manufacturers of pumps for every service, will open on October 1 a Philadelphia office at 111 N. Third street. They have purchased the business of H. E. Trotman, who up to the present time has been distributor for Goulds pumps in this territory, and have leased from him the storeroom and warehouse at the above address. Mr. E. S. Jenison, formerly with The Canadian Fairbanks-Morse Company, Limited, Montreal, has been appointed manager and Mr. F. G. Kramer, formerly in the employ of H. E. Trotman, will be assistant manager. Mr. J. B. Trotman will continue with The Goulds Manufacturing Company. The Goulds Manufacturing Company will confine its business to pumps, pump accessories, waterworks supplies, gasoline engines, motors, etc., for use in operating pumps. Ample stocks will be carried so that every dealer in this district is insured prompt shipment. This is the third new office opened within the past ten months by the company, an office having been opened in Pittsburg on August 1 and one in Atlanta on December 1.

## NEWS OF THE SOCIETIES

(Continued from page 516).

ease of operation, comfort, something good to look at, music, are those things which make up municipal governments.

"After all, a municipality is an aggregation of homes. So it seems to me that neighborliness is the prime requisite of success.

"If several men are charged with the great responsibility of conducting a city government, much depends on the relationship with other cities, not only cities of our own commonwealth, but those in others. There are manifold problems to be considered. Any adequate, satisfying solution of these problems is becoming rapidly more difficult. These problems are bigger, hence they cost more to be dealt with.

"If you hope to cope with the situation, you must contrive to do the same amount of work with less money. There is much to be known about these things.

"One of the things I wish to emphasize is our absolute dependence on experts—the men who know. The jack-of-all-trades is gone. The specially trained man in some line is here to stay. There is more than one reason why experts have been more or less

abused. In the first place, the word itself is very elastic and has been stretched to cover the deficiencies of divers charlatans. So, for us, it is a matter of separating the faker from the real thing.

"We have to develop the same confidence in the method of choosing and our ability to choose wisely in employing experts as we do in selecting a family physician."

### Northwestern Good Roads Congress.

The annual convention of this association will be held at Cedar Rapids, Ia., Oct. 4-8. There will be discussions on various kinds of roads, including brick, cement, macadam and gravel. T. H. McDonald, chief engineer of the Iowa State Highway Commission, is announced to lead a discussion on the earth road and its possibilities.

Among the other speakers will be Gov. Clarke, President George W. Cooley of the Good Roads Congress, Mayor Louis Roth of Cedar Rapids, John M. Grimm of Linn county highway commission, J. P. Keenan, secretary of the Northwest Good Roads Congress, Bert W. Williams, collector of internal revenue, Madison, Wis., D. W. Norris, Jr., chairman of Iowa better roads committee, A. D. Gash, president of the Illinois highway commission, Logan W. Page, director of the United States department of public roads, J. L. Long, editor of the "Road Maker," F. F. Rogers of the Michigan state highway commission, Dean A. Marston of the Iowa State Highway Commission, and W. W. Marr, Illinois state engineer.

### Pennsylvania State Firemen's Association.

Preparations are being made for a gala time when the Firemen's Association of the State of Pennsylvania holds its thirty-sixth annual convention in Philadelphia from October 4 to 7. Various committees of firemen and citizens are working out the details of the convention, which will be the first meeting of the association held in Philadelphia since 1903.

The headquarters of the association will be Scottish Rite Hall, Broad and Race streets, at which place the convention will open on October 4, with a reception to the delegates. During the first day the committee of women, which has been appointed for the purpose of entertaining the ladies attending, will show them points of interest. Tours to places of interest throughout the city will be personally conducted by entertainment committees.

The second day of the convention will open with a business session at the headquarters at 9 o'clock in the morning. At 11.30 o'clock there will be a trip to Valley Forge, for women accompanying the delegates. The trip will be made in automobiles and lunch will be served at Valley Forge. In the afternoon of the same day a business session will be held at the headquarters.

An entertainment and dance for delegates will be given at the Convention Hall on the night of Tuesday, October 5.

Following a business meeting at headquarters on the morning of October 6, the delegates and their wives will be taken on a tour of the Wanamaker store.

Philadelphia fire-fighting will be shown to the visitors in a test of the fire apparatus in connection with the high-pressure system, the exhibition being given on the City Hall Plaza. A dance in Scottish Rite Hall in the evening will practically conclude the convention proper.

### Southern Appalachian Good Roads Association.

The people throughout the Southern Appalachian country are showing interest in the seventh annual convention of the Southern Appalachian Good Roads' Association, which is to be held at Bluefield, W. Va., Oct. 14-16, inclusive. Many prominent men from the states (Maryland, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia and Alabama) in this association, are expected to attend, among whom are Governors Goldsborough of Maryland, Craig of North Carolina, Stuart of Virginia and Hatfield of West Virginia.

Since the organization of the association road work in this general section has gone forward rapidly. The building of local roads is no longer the end in view, but the connecting up of these roads with through highways leading into other counties, other states and throughout the nation generally, is the goal toward which the association is working. Many of these roads have been built; many are in contemplation. One of the vital subjects to be discussed is that of "Road Maintenance."

The question of maintenance will be given prominent place on the program, and other subjects for discussion will be the "Financing of Roads," location and construction, signing of roads, state and federal aid and their relationship, etc.

### New England Section, National Electric Light Association.

At the annual convention held at Kineo, Me., the following officers were elected: President, W. S. Wyman of Augusta; vice-president, R. W. Rollins of Worcester, Mass.; treasurer, Bowen Tufts of Boston; executive committee, A. H. Ford of Portland, Ralph D. Smith of Keene, N. H., Walter H. Vorce of St. Albans, Vt., C. R. Hayes of Fitchburg, Mass., A. B. Lisle of Providence, and George B. Leland of Stamford, Conn.

### Vermont Firemen.

George T. Kidder, president of the Vermont Firemen's Association, has announced that the annual state convention of the association will be held in Burlington Wednesday, October 6.

# ADVANCE CONTRACT NEWS

## ADVANCED INFORMATION BIDS ASKED FOR

## CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

### BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS</b>				
O.	Ravenna.....	Noon, Oct.	2..Grading, draining and paving with brick.....	J. S. Mallette, Dir. P. S.
Wis.	Racine.....	10 a.m., Oct.	2..About 3,000 yds. grading.....	P. H. Connolly, Chr. B. P. W.
O.	Findlay.....	noon, Oct.	2..Repairing county road.....	J. C. Copeland, Co. Clk.
Ind.	Muncie.....	10 a.m., Oct.	2..Improving alley.....	J. R. Kelly, City Clk.
Tenn.	Jacksboro.....	Oct.	2..Grading and macadamizing.....	Bd. Hwy. Comms.
N. Y.	Buffalo.....	11 a.m., Oct.	2..Paving with wire cut lug brick.....	F. G. Ward, Comr. P. W.
S. D.	Mitchell.....	8 p.m., Oct.	4..Grading and paving.....	T. Eastcott, City Aud.
Pa.	Kingston.....	8 p.m., Oct.	4..Brick pav. on conc. foundation, stone or conc. curb. & improvements.....	Young & Wintemute, Engrs., 402 2d Nat. Bank Bldg., Wilkes-Barre
Minn.	St. Paul.....	10.30 a.m., Oct.	4..Repav. with creosoted wood blks., repairing & macadamizing, & street improvements.....	A. Hohenstein, Pur. Agt.
Ind.	Ft. Wayne.....	4 p.m., Oct.	4..Grading and macadamizing and improvements.....	Board of Park Comrs.
Miss.	Raymond.....	Oct.	4..Improving road.....	W. W. Downing, Chancery Clk., Jackson
Mich.	Fairfield.....	2 p.m., Oct.	4..36,980 ft. macadam road.....	E. C. Breese, Twp. Clk., Weston
Mont.	Hardin.....	2 p.m., Oct.	4..4½ miles road.....	County Surveyor
N. J.	Passaic.....	10.30 a.m., Oct.	4..Asphalt bound macadam, concrete flag curb, etc.....	City Engineer
Kan.	Salina.....	Oct.	4..Paving.....	City Clerk.
Minn.	Duluth.....	11 a.m., Oct.	4..Grading, paving and improving.....	J. A. Farrell, Comr. P. W.
Ind.	Shoals.....	1 p.m., Oct.	4..Macadam road.....	L. D. Haga, Martin Co. Aud.
Ind.	Greensburg.....	1 p.m., Oct.	4..Road work.....	L. W. Sands, Decatur Co. Aud.
N. J.	Midland Park.....	Oct.	4..Paving.....	Bd. Chosen Freeholders.
Minn.	Buffalo.....	8 p.m., Oct.	4..Grading.....	E. O. McGaffey, Vil. Clk.
Ky.	Louisville.....	2 p.m., Oct.	4..Paving with asphalt.....	Roger McGrath, Sec. D. P. W.
Pa.	Plains.....	7.30 p.m., Oct.	4..Grading, curbing, guttering and draining road.....	Wm. Rowlands, Sec. Comrs.
Minn.	St. Paul.....	10.30 a.m., Oct.	4..Repaving with wood block, macadamizing and improving streets.....	Aug. Hohenstein, Pur. Agt.
Pa.	Kingston.....	8 p.m., Oct.	4..2,340 yds. brick paving, 1,610 ft. stone or concrete curbing, storm sewer, etc.....	William Williams, Sec. Council
Miss.	Raymond.....	Oct.	4..Constructing two miles pike.....	W. W. Downing, Chancery Clk.
Ind.	Greensburg.....	1 p.m., Oct.	4..Constructing road.....	L. W. Sands, Co. Aud.
S. D.	Mitchell.....	8 p.m., Oct.	4..9,669 yds. asphalt, cement, brick or wood block; paving 5,400 ft. curb and gutter.....	Thomas Eastcott, Co. Aud.
Kan.	Wichita.....	Oct.	4..Eight miles sand and clay paving.....	E. V. Moore, Co. Engr.
Wis.	Green Bay.....	10 a.m., Oct.	4..Paving alleys.....	F. Biemer, Chr. St. Comm.
D. C.	Washington.....	2 p.m., Oct.	4..Grading streets, about 19,500 cu. yds.....	District Commissioners
Ind.	Goshen.....	Oct.	4..Constructing concrete road.....	John Brown, Co. Aud.
La.	Anamosa.....	10 a.m., Oct.	4..Constructing road.....	P. J. Hines, Co. Aud.
Ind.	Rockport.....	2 p.m., Oct.	4..Grading, paving and improving road.....	J. T. Stephenson, Co. Aud.
Ind.	Franklin.....	2.30 p.m., Oct.	4..Grading, paving and improving road.....	H. L. Knox, Co. Aud.
Ind.	Lebanon.....	2 p.m., Oct.	4..Grading, paving and improving roads, 2 jobs.....	D. M. Clark, Co. Aud.
Pa.	Altoona.....	Oct.	4..16,000 yds. paving, 8,000 ft. curbing.....	D. W. Dillman, Engr., Altoona Tr. Bldg.
N. D.	Minot.....	Oct.	4..3¼ miles street grading, cost \$33,000.....	City Clerk
Neb.	Wymore.....	8 p.m., Oct.	5..Constructing walks.....	C. R. Freeborn, City Clk.
Ind.	Crawfordsville.....	10 a.m., Oct.	5..Grading, paving and improving road.....	B. B. Engel, Co. Aud.
Ind.	Washington.....	2 p.m., Oct.	5..Grading, paving and improving road.....	L. S. Core, Co. Aud.
Ind.	Angola.....	1 p.m., Oct.	5..Improving highways.....	Frank C. Dewey, Co. Aud.
N. D.	Bismarck.....	2 p.m., Oct.	5..Road construction.....	T. E. Flaherty, Co. Aud.
Miss.	Derma.....	Oct.	5..1,800 sq. ft. concrete sidewalk.....	N. M. Crawford, St. Comr.
Ind.	Winamac.....	Oct.	5..Constructing three miles gravel road.....	C. E. Paul, Co. Surv.
Ind.	Brazil.....	Oct.	5..Grading, draining and paving with gravel.....	W. O. Graeser, Co. Aud.
Mo.	St. Louis.....	Noon, Oct.	5..Paving with brick and constructing granite curb.....	E. R. Kinsey, Pres. B. P. S.
Ind.	Bedford.....	1 p.m., Oct.	5..Constructing concrete road.....	E. W. Edwards, Co. Aud.
Ind.	Covington.....	2 p.m., Oct.	5..Constructing gravel road.....	H. W. Newlin, Co. Aud.
Ind.	Monticello.....	10 a.m., Oct.	5..Gravel road.....	A. G. Fisher, White Co. Aud.
N. J.	Perth Amboy.....	8.30 p.m., Oct.	5..Constructing asphalt block pavement.....	G. M. Adair, St. Comr.
N. J.	Newark.....	8 p.m., Oct.	5..Constructing concrete sidewalks.....	E. H. Halsey, 164 Market St.
N. J.	Paterson.....	4 p.m., Oct.	5..Grading, curbing and guttering three streets and macadamizing 27.....	H. J. Harder, City Engr.
Md.	Easton.....	Noon, Oct.	5..Macadam or shell road.....	State Roads Comm., Baltimore
O.	Liverpool.....	Noon, Oct.	5..Grad. & pav. with brick & cemented improvements.....	J. A. Kenney, Clk. Twp.
La.	Des Moines.....	9 a.m., Oct.	6..Paving several jobs.....	Supt. Sts. & Pub. Impts.
O.	Canton.....	Oct.	6..Road improvements with mac. conc. or brick.....	Stark Co. Comrs.
N. J.	West Hoboken.....	Oct.	6..Repaving portions of street and constructing walks.....	A. L. Wachlin, Town Clk.
Cal.	Bakersfield.....	Oct.	6..Constructing six miles concrete road.....	I. L. Miller, Clk. of Supv.
N. J.	Long Branch.....	10 a.m., Oct.	6..Widening, straightening and opening streets.....	Maude Finn, City Clerk.
N. J.	Freehold.....	11 a.m., Oct.	6..Road construction.....	G. D. Cooper, Co. Engr., Red Bank
O.	Cleveland.....	noon, Oct.	6..Grading, paving, curbing and improving five streets.....	A. R. Callow, Comr. Pur. & Sup.
Ind.	Shelbyville.....	10 a.m., Oct.	6..23,330 ft. gravel road construction.....	F. W. Fagel, Co. Aud.
N. J.	Freehold.....	11 a.m., Oct.	6..Furnishing materials and constructing road.....	J. M. Corlies, Dir. Bd. Freeholders
Ind.	Muncie.....	Oct.	6..Constructing two miles gravel road.....	F. M. Williams, Co. Aud.
N. J.	Jersey City.....	Oct.	7..Paving Passaic Ave. and Paterson Plank Road with granite block.....	Co. Bd. Chosen Freeholders
N. J.	Newark.....	Oct.	7..Laying asphalt pavement.....	M. R. Sherrard, Ch. Engr.
Ind.	La Porte.....	10 a.m., Oct.	7..Constructing road.....	F. A. Hausheer, Co. Aud.
Kan.	Independence.....	2 p.m., Oct.	7..18,488 yds. brick pavement; 9,956 ft. curb and gutter, and 8,384 cu. yds. excavation.....	Geo. Weaver, C. E.
N. J.	Newark.....	3.30 p.m., Oct.	7..Resurfacing with asphalt.....	M. R. Sherrard, Ch. Engr.



## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Minn.	Anoka	2 p.m., Oct.	7..Road work and culverts	Anoka Co. Comrs.
Kan.	Independence	Oct.	7..St. pav. with vertical fiber brick, conc. curb. & impts.	G. H. Kreinhagen, City Clk.
N. Y.	New York	3 p.m., Oct.	7..Paving & repaving with rock asphalt mastic	Dept. Parks, Manhattan Boro.
O.	Columbus	Noon, Oct.	8..Grad., draining & macadamizing several roads	Franklin Co. Surveyor
Tenn.	Cumberland Gap	Oct.	8..Grading and macadamizing 103 miles road	J. H. S. Morison, Ch. Rd. Com.
O.	Columbus	noon, Oct.	8..Curbing, constructing sidewalk and paving with brick or macadam	G. A. Borden, Dir. P. S.
Tenn.	Tazewell	11 a.m., Oct.	8..Grading and macadamizing 103 miles county road	C. R. Fulton, Surrogate.
Ind.	Franklin	2.30 p.m., Oct.	8..Grading, paving & improving roads, two jobs	H. L. Knox, Co. Aud.
Wis.	Racine	10 a.m., Oct.	9..4,491 yds. brick or asphalt pav. & 2,926 ft. combined curb and gutter; 2,268 yds. brick paving	P. H. Connolly, Chr. B. P. W.
Ind.	Noblesville	10 a.m., Oct.	9..Constructing concrete road	W. O. Horton, Co. Aud.
Ind.	Logansport	Oct.	9..43,540 yds. pavement	Wm. Pickett, City Clk.
N. J.	Newark	2.30 p.m., Oct.	11..Improving streets and roads	F. A. Reimer, Co. Engr.
N. J.	N. Brunswick	2.30 p.m., Oct.	11..Constructing South Amboy-Keyport road	A. E. Fox, Eng., Perth Amboy.
Wash.	Olympia	Oct.	11..Grading, draining and surfacing seven miles of road; surfacing 17.3 miles with gravel	W. R. Roy, State Hwy. Comr.
N. J.	Newark	2.30 p.m., Oct.	11..Improving road	F. A. Reimer, Boro. Engr.
Wash.	Olympia	Oct.	11..24 miles state highway	Wm. R. Roy, State Hwy. Comr.
N. J.	Irvington	2 p.m., Oct.	11..Paving	Frederick A. Reimer, Co. Engr., Newark
Cal.	Los Angeles	2 p.m., Oct.	11..Road improvements	H. J. Lelande, Clk. Bd. Co. Supv.
Ind.	So. Bend	10 a.m., Oct.	12..Grading, curbing, paving and improvements	Dept. Public Works
Del.	Wilmington	noon, Oct.	14..Improving 7,500 ft. of road	Jas. Wilson, State Hwy. Comr.
Ind.	Hartford City	7 p.m., Oct.	15..Sidewalk improvement and construction	Edwin McEldowney, City Clk.
Fla.	Pensacola	Oct.	17..Three blocks of wood paving	L. E. Thornton, City Engr.
Ind.	Logansport	Oct.	19..Laying 42,000 yds. brick, asphalt, bit., or re. concrete	W. H. Thompson, Engr.
Tex.	Beaumont	10 a.m., Oct.	19..90,000 yds. brick, asphalt, bitu. or wood blk. paving, curbing and guttering	C. L. Scherer, City Engr.
Ind.	Franklin	2.30 p.m., Oct.	20..Gravel road	H. L. Knox, Johnson Co. Aud.
R. I.	Providence	5 p.m., Oct.	21..Curbing, guttering and macadamizing road	Town Clerk, West Warwick.
O.	Granville	Oct.	28..Paving with brick or sheet asphalt	R. E. Morrow, Vil. Clk.

## SEWERAGE

O.	Salem	Noon, Oct.	2..3,000 ft. 8 to 15-inch sewer construction	I. N. Russell, Dir. P. S.
N. D.	Minot	Oct.	4..Two miles sanitary sewers 10 to 15-in., one mile 12 to 24-inch storm sewers, cost \$25,000	E. J. Thomas, City Engr.
Mich.	Bay City	9 a.m., Oct.	4..Constructing 10-in. socket tile sewer in several streets	E. E. Prohaska, Chm. D. P. W.
Minn.	St. Paul	10.30 a.m., Oct.	4..Constructing sewers in several streets	Aug. Hohenstein, Pur. Agt.
Wis.	Green Bay	10 a.m., Oct.	4..Laying 12-inch sewers	City Clk.
La.	Idagrove	8 p.m., Oct.	4..Sanitary sewerage system, including 5,000 ft. 8-in. cement or vit. clay pipe, 2 flush tanks and sewer lift	G. C. Hubbard, Vil. Clk.
Minn.	St. Paul	10.30 a.m., Oct.	4..Sewer	A. Hohenstein, Pur. Agt.
La.	Estherville	Noon, Oct.	4..1,000 ft. 6-in. vit. pipe sewer	M. B. Egbert, City Clk.
Wis.	Green Bay	10 a.m., Oct.	4..12-in. vit. sewer	City Clerk
Pa.	Ridley	8 p.m., Oct.	4..Terra cotta pipe sewers	A. F. Damon, Jr., Twp. Engr., P. O. Bldg., Darby
La.	Cedar Falls	7.30 p.m., Oct.	4..Sanitary sewer	City Clerk
N. J.	Paterson	4 p.m., Oct.	5..Constructing sewers in thirteen streets	H. J. Harder, City Engr.
La.	Algona	Oct.	5..13,950 ft. 8 to 18-inch sanitary sewers	S. W. Crowell, City Clk.
N. Y.	New York	noon, Oct.	5..Temporary sanitary sewer and appurtenances	C. D. Van Name, Boro. Pres. Richmond.
Minn.	Cokato	8 p.m., Oct.	5..Constructing sewers	N. E. Berg, City Clk.
Tenn.	No. Chattanooga	Oct.	5..Constructing sewerage system	Town Comrs.
Cal.	Visalia	Oct.	6..Const. outfall sewer, disposal works & extensions to present sewer	City Engineer
N. Y.	New York	2 p.m., Oct.	6..Receiving basin	M. M. Marks, Boro. Pres. Manhattan.
Fla.	Miami	Oct.	7..Two vertical centrifugal pumps and electric motor for sewage pumping	City Clerk.
N. J.	Atlantic City	Oct.	7..Constructing extension to storm water system	J. W. Hackney, City Engr.
Minn.	Herman	7.30 p.m., Oct.	8..Drainage sewer	F. C. Anderson, Vil. Rec.
Ind.	Kokomo	2 p.m., Oct.	9..Constructing 6,488 ft. tile ditch	Wm. Kerby, Co. Drn. Comr.
Iowa	Oakland	Oct.	10..13,300 ft. 8 to 15-in. sewers	E. M. Wendz, City Clk.
Colo.	Edgewater	Oct.	10..Sewer system to cost \$32,000	G. W. Gist, Twn. Clk.
Wash.	Roslyn	Oct.	11..Sewer improvements	G. G. Wake, City Clk.
Ont.	Toronto	noon, Oct.	12..Furnishing 35-in. stop valve and special castings for pumping station	E. L. Church, Mayor
Cal.	Compton	8 p.m., Oct.	12..Sanitary sewer system	Olmsted & Gillelen, Hollingsworth Bldg., Los Angeles
La.	Denison	7.30 p.m., Oct.	12..Sanitary sewers	E. F. Tucker, City Clk.
N. C.	Hertford	2.30 p.m., Oct.	12..Wtr. wks. & sanitary sewer const., includ. pumps, motor, 60,000-gal. steel tank, hydrants, gate valves, pipe, etc.	J. B. McCrary Co., Engr., 3d Nat. Bk. Bldg., Atlanta, Ga.
N. J.	Trenton	2.30 p.m., Oct.	13..Sewers	City Engineer
O.	Cheviot	Noon, Oct.	13..Trunk sewer	A. J. Reussing, Vil. Clk.
Wis.	Appleton	9 a.m., Oct.	15..Sewer	E. L. Williams, City Clk.
Tex.	Beaumont	10 a.m., Oct.	19..40,000 ft. 6 to 18-in. sewer construction	C. L. Scherer, City Engr.
Ind.	Hartford City	2 p.m., Oct.	20..Furn. 5,515 ft. 12 to 20-in. tile and const. ditch	F. P. Wallace, Co. Surv.

## WATER SUPPLY

Neb.	Neligh	5 p.m., Oct.	2..Laying 4-in. water mains, cost \$1,615.83	R. H. Rice, Mayor
Mo.	Stanberry	7.30 p.m., Oct.	4..Repairing water tank	O. W. Greenly, City Clk.
N. D.	Minot	Oct.	4..Laying two miles water mains, cost \$19,253	E. J. Thomas, City Engr.
N. Y.	New York	2 p.m., Oct.	4..Furnishing rubber packing, hydrant parts, brass unions and other water works equipment	Wm. Williams, Comr. W. S. G. & E.
Ill.	Jacksonville	2 p.m., Oct.	4..Cast iron water mains and accessories	F. D. Whipp, Fiscal Supv., Springfield.
La.	Traer	8 p.m., Oct.	4..300 gals. per minute water works pump, rotary, centrifugal or triplex	C. P. Chase, Cons. Engineer, Clinton
Ill.	Jacksonville	3 p.m., Oct.	4..Cast iron water mains	H. C. Montgomery, Ills. School for Blind
Minn.	Thief River Falls	8 p.m., Oct.	5..Laying 1,250 ft. 6-in. water main	E. J. Overland, City Clerk.
La.	Sidney	2 p.m., Oct.	5..Waterworks improvements, pipe, hydrants, etc.	C. B. Hatton, Town Clk.
N. Y.	Brooklyn	Oct.	5..57,200 ft. galvanized steel conduit	Bureau of Supplies & Accts., Washington, D. C.
Pa.	Tamaqua	Oct.	5..Constructing reservoir	J. H. Lane, Engr., 30 N. Franklin St., Wilkes-Barre.
La.	Luverne	Oct.	6..Constructing water works system	L. W. Cox, Engr., Des Moines.
O.	Cleveland	noon, Oct.	6..Furnishing cast iron adjustable valve boxes	A. R. Callow, Comr. Pur. & Sup.
Pa.	Coatesville	Oct.	7..Constructing high service system	Alex. Potter, Engr., 50 Church St., New York.

## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
N. Y.	New York	.....2 p.m., Oct.	7.. Water mains and appurtenances.....	Wm. Williams, Comr. W. S. G. & E.
O.	Columbus	.....noon, Oct.	8.. Furnishing lead pipes.....	G. A. Borden, Dir. P. S.
D. C.	Washington	.....Oct.	11.. Steam turbine-driven 5,000,000 gal. centrifugal pump.....	District Commissioners.
Ind.	Monticello	.....Oct.	12.. Two Duplex pumps, valves, etc.....	F. L. Miner, City Clk.
Ont.	Toronto	.....Oct.	12.. 35-in. stop valves, operating mechanism and special castings.....	T. L. Church, Mayor.
N. C.	Lumberton	.....Oct.	12.. Filters, coagulating basin and pumps.....	Gilbert C. White, Engineer, Charlotte
D. C.	Washington	.....Oct.	12.. Air pumps, valves, etc.....	Bureau of Supplies & Accts., Navy Dept.
Ill.	Poplar Grove	.....11 a.m., Oct.	12.. Pump, sta., motor, air compressor, c. i. water mains, hydrants, valves, etc.....	R. S. Renne, Vil. Clk.
Ia.	Kanawha	.....2 p.m., Oct.	15.. 30,000-gal. steel tank on 80-ft. tower & 7,000 ft. 4 to 8-in. water mains.....	C. P. Chase, Engr., Clinton
Ind.	Miller	.....Oct.	20.. Constructing water works system; cost, \$14,000.....	Town Council
W. Va.	Clarksburg	.....Oct.	21.. Two gas engines and two pumps.....	G. W. Fuller, Engr., 170 Broadway, N. Y.
O.	Belleville	.....Nov.	9.. Deep well pump, has engine, 5 miles of main and storage reservoir.....	Smith & Boulay, Nasby Bldg., Toledo.
LIGHTING AND POWER				
N. Y.	New York	.....3 p.m., Oct.	4.. Installing electric and heating equipment in school.....	C. B. J. Snyder, Supt. School Bldgs.
Ind.	Huntington	.....9 a.m., Oct.	5.. 391 lamp-posts, 3 transformers, 84,000 ft. steel cable, 1,500 Mazda lamps, etc.....	F. H. Bowers, Pres. D. P. W.
O.	Bratenahl	.....Noon, Oct.	5.. Lighting streets for five years with gasoline vapor.....	C. A. Neff, Vil. Clk.
It.	Luverne	.....6 p.m., Oct.	6.. Eight miles transmission line, sub-station and distribution system.....	R. E. Cook, Twn. Clk.
Kan.	Lawrence	.....5 p.m., Oct.	11.. White Way of 80 standards.....	City Engineer
N. C.	Lumberton	.....Oct.	12.. Elec. light impts., includ. 6 miles transmission line, series tungsten street lamps, switchboard & transformers, pumps, filters & water works machinery.....	Gilbert C. White, Engr., Charlotte, N. C.
N. C.	Hickory	.....Oct.	12.. Lighting streets and operating electric plant.....	S. C. Cornwell, City Mgr.
D. C.	Washington	.....10 a.m., Nov.	17.. Central light and power plant.....	Supervising Architect.
FIRE EQUIPMENT				
Tex.	Houston	.....noon, Oct.	2.. 75-foot aerial, 65-foot water tower, first size steamer, two combined pumping engines, one combination chemical, all motor or electrically driven and 7,000 ft. hose.....	L. P. Scarboro, City Pur. Agt.
R. I.	Providence	.....2.15 p.m., Oct.	4.. Building police station.....	K. C. Richmond, Architect, 10 Weybosset St.
N. J.	Bloomfield	.....8 p.m., Oct.	4.. Combination chemical and hose truck.....	R. F. Davis, Town Clk.
Cal.	Fresno	.....9 p.m., Oct.	4.. 3,000 ft. 2½-in. & 1,000 ft. 2½-in. fire hose.....	W. H. Ryan, City Clk.
Miss.	Vicksburg	.....5 p.m., Oct.	4.. Motor-driven fire truck with front wheel steer & motor-driven chemical.....	City Clerk
N. J.	Elizabeth	.....Oct.	5.. Two roadster automobiles for fire department.....	City Controller
Ky.	Louisville	.....2 p.m., Oct.	8.. Fire hydrants.....	R. G. McGrath, Sec. B. P. W.
D. C.	Washington	.....2 p.m., Oct.	15.. 35,000 ft. cotton-covered rubber-lined 2½-in. fire hose.....	Pur. Off., 220 Dist. Bldg.
BRIDGES				
Ill.	Rock Island	.....1 p.m., Oct.	2.. Reinforced concrete bridge and culverts.....	State Hwy. Comm., Springfield
Ill.	Dayton	.....Noon, Oct.	2.. Reinforced concrete bridge.....	State Hwy. Comm., Springfield
Ind.	Goshen	.....2 p.m., Oct.	4.. Steel bridge with conc. abutments, also repairing, etc.....	John W. Brown, Elkhart Co. Aud.
Ill.	Ottawa	.....2 p.m., Oct.	4.. Reinforced concrete bridge.....	State Hwy. Comm., Springfield
Ind.	Jeffersonville	.....10 a.m., Oct.	4.. Bridge.....	G. W. Stoner, Clark Co. Aud.
Ill.	Nashville	.....10 a.m., Oct.	4.. Reinforced concrete and steel bridges.....	State Hwy. Comm., Springfield
N. Y.	Binghamton	.....10 a.m., Oct.	4.. Removing old bridge and constructing new.....	C. G. Bailey, Supt. Hwys.
O.	Batavia	.....Noon, Oct.	4.. Superstructure and flooring for bridge.....	Cleon Searles, Co. Aud.
Ind.	Richmond	.....11 a.m., Oct.	4.. Const. temporary bridge over Whitewater river.....	L. S. Bowman, Co. Aud.
Ind.	Greenfield	.....10 a.m., Oct.	4.. Constructing bridge.....	Lawrence Wood, Co. Aud.
Ind.	Rockport	.....2 p.m., Oct.	4.. Constructing bridge.....	John T. Stevenson, Co. Aud.
Miss.	Columbia	.....Oct.	4.. Constructing three steel bridges.....	L. C. Welborn, Chancery Clk.
Ind.	Frankfort	.....2 p.m., Oct.	4.. Bridge.....	Clinton Co. Comms.
O.	Millford	.....noon, Oct.	4.. Repairing and improving bridge.....	Cleona Searles, Clermont Co. Aud., Batavia, O.
N. D.	Manning	.....2 p.m., Oct.	4.. Steel truss bridge.....	C. H. Gutmann, Dunn Co. Aud.
Va.	Richmond	.....Noon, Oct.	4.. 75-foot span steel bridge.....	G. F. Coleman, St. Hy. Com.
Miss.	Meridian	.....11 a.m., Oct.	4.. Constructing concrete bridges on several streets.....	J. C. Watts, City Engr.
Pa.	Sharon	.....1.30 p.m., Oct.	5.. Concrete or steel bridge.....	Mercer Co. Comms.
Pa.	Mercer	.....1.30 p.m., Oct.	5.. Steel or concrete bridge over Venango River.....	County Comms.
Ind.	Plymouth	.....2 p.m., Oct.	5.. Bridge construction.....	G. F. McCoy, Co. Aud.
Ind.	Salem	.....1.30 p.m., Oct.	5.. Constructing five concrete bridges.....	I. H. Rutherford, Co. Aud.
N. D.	Bismarck	.....2 p.m., Oct.	5.. Reinforced concrete culverts.....	T. E. Flaherty, Co. Aud.
Kan.	Manhattan	.....Oct.	5.. Constructing 10 reinforced concrete bridges and repairing or replacing several steel bridges, cost \$15,000.....	W. S. Gearhart, State Engr.
Wyo.	Newcastle	.....2 p.m., Oct.	5.. Constructing wooden bridge.....	W. H. Dobson, Co. Clk.
Ind.	Plymouth	.....2 p.m., Oct.	5.. Bridge.....	G. F. McCoy, Marshall Co. Aud.
Ill.	Carmi	.....1.30 p.m., Oct.	5.. Reinforced concrete bridge.....	State Hwy. Comm., Springfield
N. J.	Paterson	.....2 p.m., Oct.	6.. Constructing concrete steel bridge.....	County Engineer.
O.	Cleveland	.....noon, Oct.	6.. Constructing concrete culvert.....	A. R. Callow, Comr. Pur. & Sup.
N. J.	Red Bank	.....11 a.m., Oct.	6.. Constructing bridge.....	George D. Cooper, Co. Engr.
Kan.	Lawrence	.....Oct.	6.. Constructing steel bridges.....	H. Broecker, Co. Clk.
Ind.	Crown Point	.....10 a.m., Oct.	7.. Pony truss span through bridge.....	Ed. Simon, Co. Aud.
O.	Portsmouth	.....Noon, Oct.	7.. Concrete culvert.....	T. C. Patterson, Scioto Co. Aud.
Cal.	Bakersfield	.....10 a.m., Oct.	7.. Pile bridges, culverts & rein. conc. head walls.....	Kern Co. Hwy. Comrs.
Minn.	Breckenridge	.....Oct.	8.. Six steel culverts and 11 steel bridges, cost \$12,228.....	P. E. Truax, Co. Aud.
O.	Wapakoneta	.....10 a.m., Oct.	9.. Two concrete arches at bridge ends.....	F. W. Langhorst, Co. Aud.
Pa.	Lewistown	.....10 a.m., Oct.	9.. Constructing reinforced concrete bridge.....	D. S. Price, Chr. Co. Comrs.
Ind.	Richmond	.....11 a.m., Oct.	9.. Constructing bridge.....	L. S. Bowman, Co. Aud.
O.	Cleveland	.....11 a.m., Oct.	9.. Bridge work.....	W. H. Stinchcomb, Co. Engr.
Ind.	Crown Point	.....10 a.m., Oct.	10.. Pony truss bridge.....	E. Simon, Lake Co. Aud.
Ala.	Mobile	.....10 a.m., Oct.	11.. Constructing creosoted wooden bridge.....	O. A. Alvarez, Clk. Revenue & Rd. Comm.
Ia.	Waukon	.....Oct.	12.. Constructing one 80-ft., one 140-ft. and two 100-ft. trusses.....	H. O. Orr, Co. Engr.
Ind.	Bedford	.....1 p.m., Oct.	12.. Constructing two bridges.....	E. W. Edwards, Co. Aud.
S. C.	Beaufort	.....Oct.	12.. Repairing two piers of bridge and constructing 120-ft. span steel or concrete bridge.....	W. H. Hull, Sec. Co. Comrs.



BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Pa.	Harrisburg.....	10 a.m., Oct. 13..	Double 26-ft. span concrete bridge.....	R. J. Cunningham, State Hwy. Commissioner
Ohio	Steubenville.....	2 p.m., Oct. 15..	Constructing steel and reinforced concrete bridges.....	J. L. Means, Co. Aud.
Ind.	Dayton.....	Oct. 18..	Steel and concrete bridge.....	G. W. Baxter, Tippecanoe Co. Aud., LaFayette
Pa.	Glenfield .....	Oct. 27..	Reconstructing steel and concrete bidge.....	W. N. Kratzer, Burgess.
<b>MISCELLANEOUS</b>				
R. I.	Providence.....	Oct. 4..	Constructing police station.....	Bd. of Contract & Supply
Minn.	St. Paul.....	10.30 a.m., Oct. 4..	232 bbls. cement; 12 tons asphaltic cement, sand, crushed stone and dust.....	Aug. Hohenstein, Pur. Agt.
N. J.	Elizabeth .....	Oct. 5..	Two automobiles, roadster type.....	Fredk. Rieke, Chr. Finance Committee.
N. J.	Red Bank.....	11 a.m., Oct. 6..	Constructing earth fill.....	George D. Cooper, Co. Engr.
O.	Cleveland .....	noon, Oct. 6..	Lubricating oil and grease for water department.....	A. R. Callow, Comr. Pur. & Sup.
N. J.	Freehold.....	11 a.m., Oct. 6..	Constructing earth fill.....	Geo. D. Cooper, Co. Engr., Red Bank
Pa.	Pittsburgh.....	11 a.m., Oct. 6..	Constructing city and county building.....	H. M. Cribbs, Co. Cont.
Ore.	Portland.....	Oct. 7..	Furnishing cement .....	U. S. Engineer
Tex.	Houston.....	2 p.m., Oct. 8..	Garbage incinerator and destructor.....	Ben Campbell, Mayor
N. J.	Deal.....	8 p.m., Oct. 8..	Concrete bulkhead .....	Boro. Engr., 302 B'way, Long Branch
Mich.	Saginaw.....	Oct. 12..	Police signal system.....	H. F. Paddock, Comr. Health & Safety
D. C.	Washington.....	Oct. 19..	Constructing post office at Norton, Va.....	Supv. Architect
Pa.	Philadelphia .....	Noon, Oct. 19..	26,624 ft. 2-track elevated railway.....	A. M. Taylor, Dir. City Transit.
N. J.	Newark.....	Oct. 21..	Collecting garbage for five years.....	City Clerk

STREETS AND ROADS

**Tucson, Ariz.**—On Oct. 26 Prima county is to decide by election whether or not \$400,000 worth of road bonds shall be issued. This was decided by Board of Supervisors. Two issues of bonds are contemplated, one of \$100,000, to build road to summer resort of Mt. Lemmon, in Catalina mountains, and \$300,000 for most needed roads through other parts of county.

**East Sacramento, Cal.**—In accordance with agreement between Commissioner of Streets M. J. Burke and East Sacramento Improvement Club, resolution calling for opening of E St. from McKinley Park to East Levee will be presented to City Commission.

**Pasadena, Cal.**—County Board has decided to lay before voters of this county on Oct. 26 a good roads bonding proposition calling for \$2,650,000 worth of work. The two roads Pasadena is vitally interested in, Arroyo Seco road to Antelope Valley and San Gabriel Canyon road, are to be built as far as top of range if bonds carry. At that point the Arroyo Seco road will meet projected state highway if state good roads bond issue of \$15,000,000 carries. If bonds are voted good roads built will be of following: Completion of Mint Canyon road, \$200,000; Arroyo Seco at Sky Line, to meet proposed state highway, \$500,000; Sky Line, 30 miles, \$150,000; San Gabriel Canyon to Sky Line and Devil's Punch Bowl, \$750,000; Pico Blvd., \$50,000; Harbor Blvd., \$400,000; Venice to Manhattan Beach, \$50,000; La Brea Canyon, \$65,000; Orange Grove Ave., Pasadena, to Central Ave., Sierra Madre, \$75,000; Redondo and Point Firmin, \$150,000; Durfee road, \$50,000; Irwindale Ave., Foothill Blvd. to Covina road, \$30,000; Citrus Ave., Covina to Walnut, \$75,000; Lexington road, south of El Monte, \$30,000; Ventura County, Castaic Connection, \$75,000; totals, \$2,650,000.

**Santa Ana, Cal.**—Improvement of dirt with oil and gravel is recommended.

**San Diego, Cal.**—Manager of Operation Lockwood has started preparations for surfacing La Jolla Blvd. from Prospect St. to Torrey pine grade with decomposed granite.

**San Francisco, Cal.**—The Board of Works has ordered immediate paving with asphalt of following streets: Sansome, from Broadway to Vallejo, and from Union to Chestnut; Green, from Gough to Van Ness Ave.; Fern Ave., from Polk to Larkin; Fifth, from Mission to Howard; Talyor, from Sacramento to Clay; Shipley, between Fourth and Fifth Sts. Cost of paving of Sansome St. is estimated at about \$2,100 per block and \$982 for each crossing; of the two blocks and crossings on Green St. at \$3,050, and of Fifth, from Mission to Howard, at \$5,165. Paving of following streets has begun: Third, from the bridge to Fourth, with basalt, the cost being estimated at \$20,000; Spear, from Market to Folsom, basalt, \$15,600; Fifth, from Brannan to

Townsend, \$3,590. The Works Board is also having Stevenson St. from Second to New Montgomery, and Tenth from Bryant to Brannon paved with asphalt. The board has resolved to pave 24th Ave. with asphalt, between Balboa and Fulton, the cost being estimated at \$17,700, and to grade Paris St., between Italy and Amazon Aves.

**Santa Rosa, Cal.**—The Boards of Supervisors of Sonoma, Napa and Marin Counties are discussing financing construction of Black Point cut-off highway. Napa County has contributed \$65,000, Sonoma \$75,000 and Marin \$35,000. The State Highways Commission requests that all three counties pay before the work is done. It is thought agreement will be reached.

**Wilmington, Del.**—It is expected that Levy Court will receive petition regarding Philadelphia turnpike. Hundreds of property owners demanded that road be resurfaced. Members of Levy Court cannot see their way clear to do the work. During session of last Legislature effort was made to get bill for bond issue for \$110,000 to rebuild the pike. Amount was later cut to \$75,000, but bill was defeated as it provided that special commission do the work. Bids have been received by Levy Court to build road from Ashland to Centreville school.

**Wilmington, Del.**—Bids received for road from Ashland to Centreville have been rejected and court decided to advertise for bids for about 1½ miles of the road. This will allow some money to be used to continue resurfacing of Philadelphia pike.

**Miami, Fla.**—County Commissioners have called election for Tamiami Trail bonds on Oct. 19. Road and bridge district proposed in this bond issue includes part of eleven voting districts. Amount called for in proposed bond issue is \$275,000, to be used in construction of Miami-Marco hard surface road by way of 20th St., and building of hard surface road along north bank of Miami Canal as far west as Broward County line.

**Tallahassee, Fla.**—By vote of 564 to 168, Leon County has carried election in favor of bond issue for \$200,000 for road improvement. Three small precincts are still to be heard from, having total of about 50 votes.

**Alton, Ill.**—David O. Thomas, superintendent of highways for St. Clair County, has launched campaign for \$2,000,000 bond issue in St. Clair County, for system of permanent roads. In letters to Board of Supervisors, Thomas says only way county can get systematic action is through issue of 20-year bonds, available by 1917. Thomas proposes that for present county use state aid funds, running to approximately \$10,000 a year, together with county and township road funds solely for oiling and grading the principal dirt roads. By 1917 every principal road in county would be oiled and in condition to be made into permanent hard road.

**Canton, Ill.**—Board of Supervisors has passed resolution putting a 12¼ mile strip of road between London Mills and Avon on state aid hard road map. Board has decided to devote all state aid funds to construction of bridges. The amount is \$23,631, of which the county pays one half. The motion was made by Supervisor Hardin of Waterford, after Farmington Twp. representatives offered to put up \$15,000 in addition to state funds to get hard road improvement in that township.

**Pekin, Ill.**—County Board has appropriated \$19,000 for road work.

**Peoria, Ill.**—Peoria County on April 2 will vote on question of issuing \$500,000 in bonds for constructing and improving designated state aid roads.

**Peoria, Ill.**—Plans and blue prints for permanent improvement of Galena Road were adopted at meeting of board of directors of road improvement association in rooms of association of commerce. It is estimated that cost of constructing brick road from water works point to street car loop will be in neighborhood of \$30,000.

**Springfield, Ill.**—With exception of \$18,000, Sangamon county will use during coming year its good road money for construction of permanent earth roads with oil. All of concrete road work to be done will be on Peoria Rd., where extension of 4,300 ft. north to Sangamon river bridge at cost of \$18,000 will be made out of funds appropriated by County Board and amount allotted to this county by state under Tice Good Road law. Money to be spent on Peoria Rd. will also pay for permanent improvement work to be done on river levee. Without amendment County Board adopted report of its special good road, and road and bridge committees which recommended that county accept the \$17,000 state aid funds and that following amounts be spent on following roads: Peoria Rd., \$18,000. Old Jacksonville Rd., \$8,000; permanent earth work and oil. Sangamon Ave. Rd. east from the fair ground, \$4,000; earth and oil. South 6th St. Rd., south from where the concrete ends, \$4,000; earth and oil.

**Springfield, Ill.**—It is proposed by commercial clubs of Illinois, through issuance of \$10,000,000 in State bonds, bearing 4 per cent. interest, to construct approximately 1,000 miles of permanent roads. Governor Dunne has been asked to include proposition, in his call for special session, if one is called, Legislature to prepare resolution submitting proposition to voters at general election in 1916. New highway would consist of four routes, about as follows: One north and south route; three east and west routes, dividing the State into as nearly four equal parts as is feasible.

**Waukegan, Ill.**—Bond issue for good roads in Lake county is recommended.

**Center, Ind.**—Petitions for two concrete roads in Center Township, Marion County, and one gravel road in Perry Township, have been filed with William T. Patten, County Auditor.

**Fort Wayne, Ind.**—Board has agreed to use bituminous concrete on paving Wayne trace from New Haven Ave. to the alley west of Felician St. The Grace Construction Co. bid \$4.15 per lin. ft. for doing the work with this kind of material.

**Hartford City, Ind.**—Bids will be received on Oct. 15 for construction of sidewalks in N. Walnut St.

**Laporte, Ind.**—Laporte County road bonds have sold at good premium. Two sets of bonds were disposed of by County Treasurer Joseph Johann at very satisfactory figures. There were eight bidders for each set which also would indicate that Laporte County bonds, at least are in demand. The \$22,000 of bonds for building the B. E. Bear road in Wills Township were awarded to Miller & Co., of Indianapolis, at a premium of \$175. J. F. Wild & Co. of Indianapolis, secured \$7,000 worth of bonds for building of the John G. Moyer road in Union Township.

**South Bend, Ind.**—Breed, Elliot & Harrison, of Indianapolis, has purchased bonds for construction of Lincoln Way East in St. Joseph County. The bonds are issued in sum of \$56,000, one-tenth payable annually at 4½ per cent. interest. The premium was \$360.

**South Bend, Ind.**—A modification of proposed widening of Indiana Ave. and Webster St. has been decided upon by Board of Public Works. Indiana Ave. will be left as it is and Webster St. will be widened 9 ft. instead of 11 as originally intended.

**Cedar, Ia.**—County Board of Supervisors have granted a petition asking for opening of new road into Cedar Falls.

**Pittsburg, Kan.**—A resolution to curb, pave and gutter 9th St. from Locust to Grand Ave. has been read the second time and passed. National pavement and concrete asphalt was inserted in specifications. The purpose is to get as many companies as possible to bid for contracts. Resolutions to curb, gutter and pave Elm St. from 7th to 11th, making a 30-ft. street, and 8th St. from Elm to Grand, have also been adopted.

**Salina, Kan.**—Park St. will be paved this fall. At least effort will be made to have the base laid, if nothing more is done, as this would leave street passable. Bids will be received at the next Council meeting. Pavement was petitioned for and will be of fiber brick with either sand or asphalt filler. Bids with or without street car tracks will be received. Paving will be 40 ft. wide from Ninth to Thirteenth and 37 ft. on west.

**Danvers, Mass.**—On Sept. 29th town will vote on appropriation of \$1,500 for use of road commissioners.

**North Adams, Mass.**—Town of Stamford has decided at special meeting to accept offer of \$500 recently made by W. B. Plunkett of Adams for repair of highway between Stamford and Heartwellville. Town is to spend some money in accordance with terms of Mr. Plunkett's gift and it is expected that work of fixing road will begin in near future.

**Taunton, Mass.**—Municipal Council has passed to second reading order appropriating \$14,300 for permanent street improvements, on recommendation of committee on streets and bridges. Money is to be used as follows: \$2,500 on County St. from Neck o' land bridge to Williams St.; \$2,500 for resurfacing of South St.; \$3,200 for West Britannia St. from Warren St. to the railroad, and \$4,300 on School St. from Main to Fruit.

**Calumet, Mich.**—The Keweenaw County Road Commission, at next meeting of board of supervisors, will ask for approximately \$40,000 with which to carry out its program of new highways. Prospect that the 1917 legislature may be adverse to paying state reward for highways that are built according to specifications of state highway department, prompts county road commissioners to ask for increased appropriation.

**St. Joseph, Mich.**—Surveys have been made for about 50 miles of highway work for next year. Approximate estimate \$355,000. Bids will be taken about Nov. 1, 1916. W. J. Cleary is County Highway Engineer.

**Duluth, Minn.**—The Minnesota Ave. pavement from 38th to 43d St. will be extended this fall.

**Walker, Minn.**—Bids are to be let at once for construction of over 100 miles of highway in Cass County, connecting county seat with all six villages of county. The bids are for two main roads, one being 76 miles in length and other 28 miles, at estimated cost of over

\$200,000. County has bonded itself to finance the work, and it is expected that grading will commence as soon as bid is accepted.

**Walker, Minn.**—Contracts to build more than 100 miles of highway under Elwell law, in Cass County, connecting county seat with six villages of county, are to be let this week. It is estimated work will cost more than \$200,000. The county has bonded itself to finance the project.

**Jefferson City, Mo.**—Election will be held Oct. 19, 1915, for voting on bond issue of \$100,000 for improvement of public roads in Cole County.

**Joplin, Mo.**—A north and south road to be known as Jefferson Highway will be planned at meeting to be held in New Orleans Nov. 15 and 16. Road will link Winnipeg and New Orleans together, but route that it will traverse between two cities has not been selected.

**St. Joseph, Mo.**—Among proposed bond ordinances is one which provides for issuance of \$12,000 for new asphalt plant.

**St. Joseph, Mo.**—Mayor Elliot Marshall is confident large saving can be made by substituting automatic automobile flushers for present street flushing squad, and urges need of \$10,000 bond which is included with other measures which will be voted upon. It is proposed to purchase two of latest type street flushers built.

**St. Joseph, Mo.**—An ordinance for sale of bonds for \$125,000 for purpose of repairing and improving streets and public highways in St. Joseph is considered to be one of most important of eleven proposed ordinances. Almost supplemental to these is proposition to issue \$10,000 in bonds for purchase of street flushing equipment, in order to keep repaired and improved streets in proper condition.

**Billings, Mont.**—Board of County Commissioners of Stillwater County has bonded county for approximately \$150,000, money to be devoted entirely to building bridges and improving roads throughout county, according to James T. Annin. Mr. Annin says Commissioners will start at once on campaign of road improvement that will make Stillwater County's roads the envy of every county in state. Among machinery to be purchased is caterpillar engine and complete set of grading machinery, wagons, drags and horse outfits. Mr. Annin says commissioners will build new roads throughout entire county and repair old ones.

**Fremont, Neb.**—A Russell grader costing \$305 has been purchased on recommendation of streets and sidewalks committee. The machine has a 10-in. blade. It will be delivered within next few days.

**East Orange, N. J.**—Ordinance has been passed to provide for improvement of Central Ave. from Newark boundary line to Orange boundary line by repaving same.

**Madison, N. J.**—Borough Council has voted to reject as too high all bids for paving of Waverly Pl. and Prospect St. and permission was granted road and sidewalk committee to advertise for new bids. Bids for electrical work in King's Rd. also were rejected and all checks deposited were ordered returned.

**New Brunswick, N. J.**—County Engineer has been requested to present new plans for two sections of Amboy-Keyport Rd. upon which bids had been previously rejected, and Clerk Bissett has been instructed to advertise for new bids upon same. Freeholder Kerr presented resolution calling for plans and specifications for macadamizing of Amboy Ave. from Spa Springs to Myrtle Ave., in Perth Amboy, a distance of 6,390 ft., and on New Brunswick Ave. from Florida Grove Rd. to Mitchell St.

**New Brunswick, N. J.**—Commissioners have adopted, on first and second readings, ordinances providing for paving and curbing of seven streets with vitrified brick, asphalt block or warrentite, as follows: Albany St., between Somerset and the P. R. R. connecting line; Paterson St., from Kirkpatrick St. to French St.; Oliver St., from George St. to Burnet St.; Hassart St., from George St. to Burnet St.; Carman St., from George St. to Burnet St.; John St., from Commercial Ave. to Oliver St.; Welton St., from Remsen Ave. to Throop Ave.

**Newark, N. J.**—For paving of Broad St. and Valley Rd. with warrentite, and Wyoming Ave. with asphalt block, following bids were received by County of

Essex: Broad St.—Standard Bitulithic Co., excavation cu. yd., 50 cts.; scarifying, sq. yd., 5 cts.; broken stone, net ton, \$1.85; pavement, sq. yd., \$1.31. Jackson Construction Co., 45 cts., 7 cts., \$1.95, \$1.36; Northern Construction Co., 55 cts., .035 cts., \$1.86, \$1.41; Francisco Bros., 45 cts., 6 cts., \$1.95, \$1.39. Quantities—Pavement, 24,000 sq. yds.; scarifying, 24,000 sq. yds.; stone, 2,500 tons; excavation, 500 cu. yds. Total bids—Standard Bitulithic Co., \$27,515; Jackson Construction Co., \$39,420; Northern Construction Co., \$39,605; Francisco Bros., \$39,900. The bid of the Jackson Construction Co. did not have the certified check accompanying bid as required. Valley Rd.—Standard Bitulithic Co., excavation cu. yd., 50 cts.; scarifying, sq. yd., 5 cts.; broken stone, ton, \$1.90; pavement, sq. yd., \$1.31; total, \$86,450. Jackson Con. Co., 45 cts., 7 cts., \$1.95, \$1.36, \$90,575; Northern Con. Co., 55 cts., .035 cts., \$1.86, \$1.41, \$90,910; Francisco Bros., 45 cts., 6 cts., \$1.85, \$1.39, \$91,075. Quantities—Pavement, 15,000 sq. yds.; scarifying, 55,000 sq. yds.; stone, 6,000 tons; excavation, 500 cu. yds. Jackson Con. Co.'s bid not in conformity with advertisement inasmuch as no certified check enclosed with proposal. Wyoming Ave. Bids—Bamberger and Chapman Co., pavement sq. yd., \$2.17; excavation, cu. yd., 32 cts.; 48-in. culvert station, 49x65, \$910; 18-in. vitrified pipe, per ft., \$1.60; 30-in. culvert at station, 27x50, \$460; 24-in. culvert at station, 40x70, \$99; \$772; manhole, each, \$45; catch basin, each, \$55; total, \$46,167. R. H. Kernan & Bro., \$2.14, 34 cts., \$975, \$1.25, \$550, \$1,080, \$75, \$100, \$47,214; Glenfield Con. Co., \$2.12, 38 cts., \$1,000, \$2.25, \$490, \$950, \$48, \$125, \$48,556; Ludwig Batt, \$2.25, 39 cts., \$1,450, \$1,455, \$780, \$35, \$35, \$49,764; Ernest Abraham, \$2.57, 55 cts., \$1,150, \$1.75, \$513, \$851, \$100, \$75, \$60,334; Newark Paving Co., \$2.16, 27 cts. \*No bid submitted for drain work. Quantities—15,000 sq. yds. pavement, 32,600 cu. yds. excavation; 280 ft. 18-in. vitrified pipe; 1 manhole; 10 catch basins.

**Newark, N. J.**—Mayor Raymond has sent to Board of Works his veto of its resolution awarding contract to pave Vesey St. from Pacific St. to McWhorter St. with bitulithic. Contract had been awarded to Glenfield Construction Co.

**Newark, N. J.**—Work of repaving Roseville Ave. is being planned.

**New Hope, N. J.**—The Solebury Good Roads Association will meet in Kooker's Hall, this borough, and definite plan for improvement of highways is expected to be adopted.

**Trenton, N. J.**—Through the efforts of Frank S. Katzenbach, Jr., State Road Department has decided to increase its allowance for resurfacing of Brunswick pike with bituminous concrete, and the Board of Freeholders have adopted resolution providing for completion of work as soon as offer of State Road Department is received in writing. Mr. Katzenbach made it known that Colonel Stevens agreed to give county \$20,000 instead of \$10,000, amount of original allotment. Following Board meeting, road committee held a session and decided to advertise for bids for construction of road from Hightstown to Princeton Junction. Bids will be received at the meeting Nov. 9. Road will be constructed of macadam.

**Trenton, N. J.**—Estimates of Newton Paving Co. for street paving with asphalt, received Sept. 17 by City Commission, were higher than those of a few weeks ago submitted by same concern. The Newton Co. offered bids on two streets at \$1.52 a sq. yd. for Bermudez, the only natural product proposed. A recent bid of the same company was \$1.35 a sq. yd. There was only one bid submitted. Bids opened were for pavements on Eastburn Ave., from North Clinton Ave. to the northerly terminus, and on Pearl St., from South Clinton Ave. to Hudson St. The proposals were referred to the department of streets. C. A. Reid & Co. offered lower bid for contract for paving East Canal St., between East State and Magowan Sts., with granite block. Their proposal was \$3.16 a sq. yd. for Mt. Airy. The only other bidder was Antonio Di Lucia, who offered Mt. Airy block at \$3.36. These bids were also referred to the department of streets.

**Kingston, N. Y.**—Board of Supervisors have approved revised plans and specifications for construction of Napanoch-Montela County Highway, which passes through Lackawack, whereby roadway will have depth of from 9 to 15 ins., instead of 6 ins. as originally planned by



state highway department. The increased cost of road will amount to \$29,900, of which county will pay \$10,465.

**New York City, N. Y.**—Borough President Marks has announced that following list of streets are about to be repaved in Manhattan, and he requests that residents on these streets take notice that any desired subsurface connections for gas, electricity, steam or water should be made at once, for after new pavement is laid no cut therein will be permitted for one year, except in case of accident. New type signs with this warning are now being placed at corners of the streets about to be paved. Granite Block—18th St., from 4th Ave. to Broadway; widening and repaving Duane St., from Rose St. to William St. Sheet Asphalt—51st St., from 1st Ave. to 3d Ave.; 52d St., from 5th Ave. to 6th Ave.; 151st St., from Amsterdam Ave. to Broadway; Lexington Ave., from 21st St. to 23d St.; 22d St., from Lexington Ave. to 4th Ave.; Columbus Ave., from 65th St. to 69th St.; 6th Ave., from 23d St. to 32d St.; 25th St., from Broadway to 6th Ave.; 32d St., from 5th Ave. to Broadway; 32d St., from 6th Ave. to 7th Ave. Sidewalks—Cathedral Parkway (110th St.), from 7th Ave. to 8th Ave.

**Niagara Falls, N. Y.**—Board of Public Works has approved proposition to expend \$900 for repair of Fifth St. pavement and \$1,000 for repair of East Falls St. City engineer was directed to go ahead with the work. Money was left from Niagara St. repair job.

**Schenectady, N. Y.**—Ordinances have been adopted for grading, curbing and paving of several streets.

**Syracuse, N. Y.**—A new route for State Fair Blvd. approach is being worked out by city planning commission. Plan, it is believed, will bring cost to a minimum, eliminate all grade crossings on Empire United Railways lines and avoid construction of underpass at West Shore Railroad. Proposition is to transfer the trolley tracks from Liberty St. to North Geddes St., leaving Liberty St. free for the boulevard. There is underpass at each street.

**Kinston, N. C.**—Election may shortly be held to vote on \$25,000 bond issue for improvement of roads.

**Deming, N. M.**—A special election was held in Luna county issuing road bonds to amount of \$100,000, and result carried by handsome majority. This will insure for this county substantial and well graded roads north, east, south and west.

**Columbus, O.**—Good roads enthusiasts have entered upon one of most ambitious projects in state highway development. Plan for immediate improvement of main market road connecting Cleveland, Columbus and Cincinnati, has just been completed. Lead in project is being taken by Ohio State Automobile Association and Ohio Good Roads Federation.

**Coshocton, O.**—Resolution has been adopted for improvement of East Main St., from Wheeling and Lake Erie Railroad tracks to 16th St., by paving roadway; also resolution for paving 2d St.

**Coshocton, O.**—State will pave and macadamize Newcomerstown-Coshocton road for 1.88 miles east of Coshocton. The road will be graded, paved with brick and bound with bituminous macadam. It will be 9,900 ft. long, 26 and 30 ft. wide with pavement of 16 to 20 ft. wide. It is estimated that improvement will cost \$41,040.71.

**East Youngstown, O.**—At the regular meeting of Village Council an ordinance providing for bond issue of \$45,000, to cover village portion of expense, incurred in improvement of certain streets was passed.

**Mansfield, O.**—Ordinance has been adopted determining to proceed with improvement of Mendota St. from Lexington Ave. to west line of Mulberry St. by paving roadway with vitrified brick or block, together with necessary headers, storm and sub-drainage, and authorizing issuance and sale of bonds to pay for said improvement; also resolution declaring it necessary to improve Diamond St., Franklin Ave. and Home Ave. by paving the intersection of said streets with vitrified brick or block, with the necessary headers, storm and sub-drainage.

**Marietta, O.**—Resolution has been adopted to provide for issue and sale of general street improvement bonds of city of Marietta, O., for purpose of providing funds to pay city's share of cost and expense of improving Fifth St. and Garfield Ave. from Montgomery St. to Adam St., by paving; Orchard St. from

Bank St. to High St., by paving; Quarry St. from Seventh St. to Sycamore St., by paving, and Bank St. from Quarry St. to Orchard St., by paving, all of said paving to be width of 16 ft.

**Salem, O.**—The offer of Security Savings & Trust Co., Toledo, bond buyers, was accepted by City Council and bonds awarded to them for premium of \$150. The bond issue was for improvement of Goshen Ave., Tenth St. and Sharp St., representing property owners' share of said improvement, and was approximately \$14,000.

**Springfield, O.**—In program of street improvements soon to be mapped out for next year, paving of E. Main St. from its present paved limits to corporation line will be one of principal ones considered.

**Youngstown, O.**—Ordinances have been passed for grading of Almira Ave. and St. Louis Ave., and for paving of West Drive of Lincoln Park.

**Pawnee, Okla.**—City of Pawnee, Okla., acting through its city clerk, H. A. Rexroad, will receive sealed bids up to 7.30 p. m., on Oct. 4th, 1915, for paving approximately 20,000 sq. yds. in business district. Paving material will be vertical fibre vitrified brick blocks with cement grout filler and sand cushion laid on concrete base. Each bid must be accompanied by certified check of bidder's bond in amount of \$1,500. Contractor will be required to take street improvement bonds at their par value in payment for the work and will also be required to file construction bond in amount of 50 per cent. and maintenance bond in amount of 10 per cent. of the contract price of the work. Plans and specifications can be procured upon payment of \$5 at office of the Benham Engineering Co., Colcord Bldg., Oklahoma City, Okla.

**Atchison, Ore.**—Bids for grading of city's half of Second St., from N to P Sts., have been opened by City Council and referred to improvement committee. Olson & Campbell bid 18 1/2 cts. per yard; J. F. Buis, 20 cts. There were no other bids. Buis made his bid conditional that he also secure grading of county's half of road. Chances are Olson & Campbell will get the work. Their bid figures \$975.

**Eugene, Ore.**—People of Florence will hold special election on October 6 to vote upon issue of \$5,000 bonds to plank number of city streets to form portion of proposed North Fork highway, extending from Cushman, the terminus of the W. P. Railway, to city of Florence.

**Philadelphia, Pa.**—Average unit low bids at letting of Sept. 21, 1915. Total amount of all low bids, \$286,141.30. Grading, total amount of low bids, \$67,586.33; grading, 231,671 cu. yds.; average price of \$0.244 per cu. yd. Low bidders: J. D. Dorney, 1204 E. Montgomery Ave.; O'Neill Co., 7811 Germantown Ave.; T. P. Lee, 5629 Cherry St.; Alex McIlhenny, 1230 S. 28th St.; J. R. Leewright, 426 W. Seville St.; P. J. Snyder & Co., Bailey Bldg.; J. J. McHugh, 1430 S. Penn Sq.; S. A. McClay, Allegheny Ave. and Tulip St.; E. H. Vane, Lincoln Bldg.; J. A. Miller, 5512 Vine St.; M. & J. B. McHugh, 892 Markoe St.; Est. D. McMahon, Germantown Ave. and Chelton Ave.; Frank Curran, 3023 Richmond St. Asphalt paving—Total amount of low bids, \$140,576.54; asphalt pavement, including 6-in. concrete base; average price of \$1.625 per sq. yd.; low bidders: Barber Asphalt Paving Co., Land Title Bldg.; Eastern Paving Co., Penn Square Bldg.; Union Paving Co., 30th and Locust Sts.; Philadelphia Paving Co., 1345 Arch St. Paving with vitrified block—Total amount of low bids, \$1,434; vitrified block pavement, including 6-in. concrete base; average price of \$2.390 per sq. yd.; low bidder: Cunningham Pav. & Con. Co., 1345 Arch St. Repaving with asphalt—Total amount of low bids, \$1,202.84; asphalt pavement, including 6-in. concrete base; average price of \$1.370 per sq. yd.; low bidder: Mack Pav. & Con. Co., 20th and Sedgley. Repaving with vitrified block—Total amount of low bids, \$25,434.63; vitrified block pavement, including 6-in. concrete base; average price of \$2.120 per sq. yd.; granite block pavement, including 6-in. concrete base; average price of \$2.943 per sq. yd.; low bidders: Cunningham Pav. & Con. Co., 1345 Arch St.; J. J. McHugh, 1430 S. Penn Sq. Repaving wood block—Total amount of low bids, \$22,025.44; wood block pavement, including mortar cushion and 6-in. concrete base; average price of \$2.830 per sq. yd.; low bidders: Phila. Paving Co., 1345 Arch St.; Richard Lamb, 136 Liberty St., New York; McNichol P. & C. Co., 1923 Cherry St.

Surfacing and resurfacing waterbound macadam—Total amount of low bids, \$2,748.50; waterbound macadam, 3-in. on a 5-in. broken stone base; average price of \$0.910 per sq. yd.; water bound macadam resurfacing; average price of \$0.390 per sq. yd.; low bidder: P. J. Snyder & Co., 903 Bailey Bldg. Improvement of Parkway, 16th to 17th Sts.—Total amount of low bids, \$17,126.62; asphalt pavement, 1-in. binder, 2-in. surface, on 6-in. concrete base, average price of \$1.635 per sq. yd.; asphalt pavement, 2-in. binder, 1-in. surface on 4-in. broken stone base, average price of \$1.270 per sq. yd.; vitrified block pavement, including 6-in. concrete base, average price of \$2.105 per sq. yd.; grading, average price of \$0.690 per sq. yd.; concrete footways, average price of \$0.930 per sq. yd.; low bidder: McNichol P. & C. Co., 1923 Cherry St. Furnishing and setting of curb, 49th St., Grays to Botanic—Total amount of low bids, \$1,781.40; B. S. curb, 5-in., average price of \$0.600 per lin. ft.; concrete masonry, average price of \$4.200 per lin. ft.; low bidder: James Kane, 4840 Mascher St. Bituminous patching—Total amount of low bids \$6,225; bituminous material, average price of \$12.45 per ton, low bidder, Union Paving Co., 30th and Locust Sts. Wm. H. Connell is Chief of Bureau.

**Wilkes-Barre, Pa.**—Asphalt paving will be laid within comparatively short time on Horton St., between Carey Ave. and Firwood Ave. Announcement of this was made at regular meeting of council when Superintendent Charles N. Loveland presented resolution accepting proposal of State Paving Co. for the work. Proposal was that sheet asphalt be laid at cost to city of \$1.93 per sq. yd. and that curbing be of White Haven red stone, to cost 78 cts. per lin. ft.

**Cranston, R. I.**—A special highway appropriation of \$25,000 has been authorized for resurfacing of Broad St.

**Sumter, S. C.**—Citizens of Sumter are eager to have their streets paved. This fact was shown by large number of petitions presented to Council by citizens who wish their streets and sidewalks paved from amount received from bond issue of \$225,000 voted some days ago for street paving. Paving will be done under Abutting Property Tax Act and petitions presented already will take up full amount of bond issue. Arrangements are already being made to issue and sell bonds so that work on paving can be commenced as soon as possible.

**Abingdon, Tenn.**—Construction of highway from Damascus to Konnarock, Va., a distance of 6 1/2 miles, is being planned.

**Elizabethton, Tenn.**—Bond commission appointed to look after sale of \$360,000 bonds recently voted by Carter County Court, has sold bonds to Oliver-Hill Construction Co., of Knoxville, and this company will build roads for county. Work is to commence within 30 days, and will be pushed to completion. Road between Elizabethton and Bluff City will be the first to be built. This is part of Memphis to Bristol highway.

**Abilene, Tex.**—City Commission has authorized that large amount of paving shall be done here. The intersections on Third Ave. and Victoria St. from Park St. to N. 5th St. are to be improved. Along car line 3d Ave. will be paved 9 ft. on either side of the track, while on Victoria the paving will be from curb to curb.

**Belton, Tex.**—Letting of contract for work in Rogers Rd. Dist. No. 10 has been deferred, as no money has yet been realized from sale of \$250,000 bonds. Oct. 14 is set as date for again taking up this matter.

**Denison, Tex.**—Road bonds in sum of \$862,000 have been sold to Harris Bank & Trust Co. of Chicago.

**Denison, Tex.**—Following the announcement that good roads bonds recently voted by people of Grayson county had been sold, comes news from Julian C. Field Co. of this city, engineers in charge of building proposed roads, that its engineers probably will start survey for roads on Oct. 1, beginning at Denison.

**Denison, Tex.**—Ordinances creating improvement districts for paving of 700 block West Main St., and portion of West Sears St., were finally passed by the City Commission at its meeting Sept. 20, and City Attorney John T. Sugars authorized to advertise for bids for construction work on these two thoroughfares.

**Temple, Tex.**—Plans are being prepared for paving work for which \$21,000 has been allotted.

**Norfolk, Va.**—Common Council in special session has placed on its first reading ordinance appropriating \$4,800 for purchase of tool roads and bridges within city limits, except Campostella bridge and approach thereto.

**Racine, Wis.**—Proposition of erecting street signs throughout city, so that strangers may find their way about, has been referred to street committee. City engineer said that signs would cost about \$6,000 or \$7,000, but before Council advertised for bids, action should be taken toward making an appropriation.

#### CONTRACTS AWARDED.

**Los Angeles, Cal.**—For improvement of De Longpre Ave. to E. Schelling, at prices named for said work in his proposal on file; 2 1/4 cts. per sq. ft. for cultivating, tamping and oiling, Specifications No. 98; 1 ct. per sq. ft. for grading to finished surface, Specifications No. 98; 30 cts. per lin. ft. for cement curb, Class A, Specifications No. 88; 10 cts. per sq. ft. for cement sidewalk, Specifications No. 84; 15 cts. per sq. ft. for concrete gutter, Specifications No. 91; 30 cts. per sq. ft. for reconstructing vitrified brick gutter, Specifications No. 66.

**Los Angeles, Cal.**—By Board of Public Works for improvement of Pacific Ave. to Fairchild-Gilmore-Wilton Co., at the prices named for said work in its proposal, on file, to wit: 16 9-10 cts. per sq. ft. for bitulithic paving, Specifications No. 99, N. S.; 4 cts. per sq. ft. for grading to subgrade, Specifications No. 99, N. S.; 35 cts. per lin. ft. for cement curb, Class A, Specifications No. 88, N. S.; 45 cts. per sq. ft. for granite block gutter, Specifications No. 71, N. S.; \$10,500 for storm drain and appurtenances, complete, from Pacific Ave. and 34th St. to Pacific Ocean, Specifications No. 87, N. S.; \$1,000 for storm drain and appurtenances, complete, from Pacific Ave. to Carolina St., to Pacific Ocean, Specifications No. 87, N. S.; \$13,000 for sanitary sewer, Plan No. 12880, complete, Specifications No. 107, N. S.; \$1,000 for storm drain and appurtenances, complete, from Pacific Ave. at angle south of Shepard St. to Pacific Ocean, Specifications No. 87, N. S.; \$500 for storm drain and appurtenances, complete, on east side of Pacific Ave. between 34th St. and 36th St., as per plan and profile No. 8442, Specifications No. 87, N. S.; and for improvement of 26th St. and Carolina St. to same firm at following bid: 15 7-10 cts. per sq. ft. for Warrenite paving, Specifications No. 103; 3 cts. per sq. ft. for grading to subgrade, Specifications No. 103; 35 cts. per lin. ft. for cement curb, Class A, Specifications No. 88; \$4,500 for sanitary sewer complete, Specifications No. 107.

**Norwalk, Conn.**—For 2,270 sq. yds. wood block and vitrified brick pavement to Empire Construction Co., 51 East 42d St., New York City, at \$13,439.50.

**Wilmington, Del.**—To I. A. Hollingsworth, of Elsmere, at \$28,995, for constructing a stretch of stone road from Ashland Station to the Centreville school house, distance of 3 miles.

**Clearwater, Fla.**—For construction of 2,800 sq. yds. brick pavement lowest bidder was Pinellas Const. Co., Augusta, Ga., at \$1.49 per sq. yd. and 45c. fill; total bid, \$4,863.

**Tallahassee, Fla.**—For paving about 3/4 miles on Adams and Monroe Sts. and Park Ave. with brick, by city council to Southern Paving & Construction Co., Chattanooga, Tenn., at \$67,434.

**West Palm Beach, Fla.**—City council has let contract for paving three blocks of Clematis Ave. with cement to F. G. Proudfoot for sum of \$13,523.15.

**St. Charles, Ill.**—For paving of East Main St., West Main St., and parts of connecting streets to Western Implementation Co., Racine, Wis., at total bid of \$55,391. Itemized bid as follows: 17,670 sq. yds. vit. brick pavement, 6-in. cement concrete base, 2-in. sand cushion, joints filled with asphalt filler, surface dressed with sand and sub-grade complete, \$1.92 per sq. yd.; 8,690 sq. yds. vit. brick pavement, 5-in. cement concrete base, 2-in. sand cushion, joints filled with asphalt filler, surface dressed with sand, and sub-grade complete, \$1.84 per sq. yd.; 10,850 lin. ft. cement concrete curb on layer of bank gravel, sub-grade complete, 38 cts. per lin. ft.; 400 lin. ft. 10-in. vit. sewer laid and constructed complete, 60 cts. per lin. ft.; 16 inlets with cast iron covers, placed and completed, \$15; 19 combined false curb and gutters with cast iron plate, 8 ft. long, \$8; 72 combined false curb and

gutter, with cast ironplate, 5 ft. long, \$6; 36 oak headers in place, \$8; extra concrete, per cu. yd., \$6.50. Totals of next 3 lowest bidders: James Cope & Sons Co., Racine, Wis., \$57,410.95; H. H. Enbody, Aurora, Ill., \$58,614.10, and James A. Sackley Co., Chicago, Ill., at \$59,333.10. John W. Wilson is Engr.

**Springfield, Ill.**—By State Highway Commission for brick road near Dwight, Livingston County, to Allan J. Parrish, Paris, at \$17,974.

**Columbus, Ind.**—To Meridith & Hallway, Columbus, at \$6,124, by Commissioners of Bartholomew and Shelby Counties for road on county line. W. H. Scott, Audr.

**Fort Wayne, Ind.**—Board has let contract for city's portion of work at Osage St. elevation job to Moellering Construction Co. on its bid of \$27,000, which is a considerable reduction from the company's original proposition. Contracts were awarded as follows: Improvement resolution No. 992, providing for sidewalks on both sides of Clay St. from Washington Blvd. to Holman St. Contract awarded to J. E. Leech on his bid of 55 cts. per lin. ft. Other bidders, Grosjean & Roemer, 56 cts.; John Grosjean, 57 cts. Resolution No. 995, providing for sidewalks on the east side of Webster St. from Wildwood to Packard. Contract awarded to Grosjean & Roemer on bid of 60 cts. per lin. ft. No other bids were submitted. Resolution No. 996, providing for sidewalks on the north side of Savilla Ave. from Indiana Ave. to Broadway. Contract awarded to J. E. Leech on his bid of 44 cts. per lin. ft. Other bidders, Grosjean & Roemer, 50 cts.; John Grosjean, 48 cts. Resolution No. 1000, providing for sidewalks on the north side of Spring St. from Short St. to Barthold St. Contract awarded to Grosjean & Roemer on bid of 69 cts. per lin. ft., 45 cts. for grading. Other bidders, John Grosjean, 76 cts. and 52 cts. for grading. Resolution No. 1001, providing for sidewalks on the south side of Putnam St. from Andrew to Sherman. Contract awarded to J. E. Leech on his bid of 55 cts. per lin. ft. Other bidders, John G. Grosjean, 65 cts.; Grosjean & Roemer, 66 cts.

**Shelbyville, Ind.**—To Kernodle, Dale & Fulwider, Lebanon, for constructing Schoentrup Road, Shelby Township, and Redenbaugh Road, Liberty Township, at \$11,958, and D. H. Fatout, Indianapolis, Pullman Road, Liberty Township, at \$5,510.

**Shelbyville, Ind.**—Raymond Peters was given contract by City Council for construction of cement sidewalks along South Pike St.

**Sullivan, Ind.**—For constructing 12,591 ft. gravel road in Hamilton Township by County Commissioners, to R. R. Singer, Sandborn, at \$10,279.

**Carroll, Ia.**—The two miles of grading on Lincoln Highway which Littig Bros. failed to finish was relet by County Board of Supervisors. P. E. Shurtart, Nevada, Ia., was successful bidder, his figure being \$3,554.40 for grading and \$202.71 for overhaul, making total of \$3,722.77. There were four other bids submitted.

**Louisville, Ky.**—Brook St. is to get a block of asphalt and Chestnut St., between Fourth and Fifth Sts., is to have three different kinds of pavement under contracts signed by Board of Public Works. The asphalt on Brook St. is to be in front of Louisville Boys' High School. Contract was awarded to the Louisville Asphalt Co. on low bid of \$10,900. This bid also includes reconstruction with asphalt of Preston St. from Jefferson to Market Sts. The Bickel Asphalt Paving Co. will do Chestnut St. block on bid of \$5,300. Wood blocks will be used between street car tracks, vitrified blocks for gutters and asphalt between gutters and car tracks. Other contracts awarded were to L. W. Hancock Co. for reconstruction of 18th St., between Magnolia and Burnett Sts., \$3,800; to Henry Bickel Co. for original construction of Dupuy St., between Kentucky and Caldwell Sts., \$10,500, and to L. W. Hancock Co. for original construction of 32d St. from Grand to Virginia Aves., \$8,250. Vitrified blocks will be used on these three jobs.

**Lake Charles, La.**—To Texas Grading Co., by Police Jury, to grade highway south of Vinton, for distance of 6 miles, for \$16,882.

**Baltimore, Md.**—The American Paving Co. on Sept. 22 offered to pave Alameda from the Harford road to Garrett property, a distance of 1,350 ft., for \$1.25 a sq. yd. on a 6-in. base. The bid was opened before board of awards, and

there was keen competition for the job. Besides doing asphalt work for \$1.25 a sq. yd., the American Co. offered to do grading for 19 cts. a cu. yd. The following firms entered competition for the job, total bids of each being as follows: American Paving Co., \$16,922.50; P. Flanagan & Sons, \$17,717.50; the Baltimore Asphalt Block & Tile Co., \$17,650, and the Consolidated Engineering Co., \$21,200. Board also opened bids for grading and paving of the Ellicott driveway, from Frederick road to Franklin road, a distance of nearly two miles. Seven firms submitted bids ranging from \$1.30 to \$1.78 for sheet asphalt, \$1.25 to \$1.50 for reinforced concrete, and \$1.08 to \$1.33 a sq. ft. for bituminous macadam. Specifications were drawn under alternative plan, and bids were referred to commissioners for opening streets for tabulation and report.

**Boston, Mass.**—For asphalt pavement on Glendower Rd. from Kittredge St. to Poplar St. to Chas. J. Jacobs Co. at \$16,418.90. For bitulithic pavement in Montebello Rd. from Forest Hills St. to Walnut Ave. to Martino De Matteo at \$8,386.96. For artificial stone sidewalk in Cushing Ave. (East and North side) from Windermere Rd. to Jerome St.; Jerome St. (South side) from Cushing Ave. to Everett Ave.; Windermere Rd. (West side) from Cushing Ave. 75 ft. northerly, to James Doherty at \$1,051.31.

**Duluth, Minn.**—Contract for furnishing 50 tons of asphalt cement probably will be awarded to the Barber Asphalt Pavement Co. on their bid of \$21.30 per gross ton. The sum of \$1,200 is to be appropriated for purchasing asphalt.

**Duluth, Minn.**—Commissioner Farrell will introduce resolutions awarding A. Hedenberg contract for paving 55th Ave. west, from Elinor to 8th St., on his bid of \$4,079 for one-course concrete, and J. D. O'Donnell contract for paving 3d Ave. east from 7th to 8th Sts., on his bid of \$2,706 for Class C macadam. Contracts will be awarded shortly.

**St. Louis, Mo.**—For paving Market St. with wood block by Board Public Service to Eyermann Constr. Co., 1216 S. Grand Ave., at \$17,224.

**Fremont, Neb.**—At special meeting of city council Sept. 21 bonds and contracts of J. M. Roberts, of Omaha, the successful bidder on 9th St. and Nye Ave. paving were approved. Mr. Roberts will begin work at once.

**Hackensack, N. J.**—For paving, by Board Chosen Freeholders as follows: Saddle River Ave. and Prospect St., in Saddle River Township, Borough Glen Rock and Ridgewood, at \$15,055; Fallsade Ave., in Englewood and Englewood Cliffs, at \$112,799, and Lemoine and Sylvan Aves., in Boroughs of Ft. Lee and Englewood Cliffs, at \$66,356, to E. C. Humphrey, Hackensack.

**Newark, N. J.**—To Alex J. Milmoie, 75 Littleton Ave., city, at \$23,621, for paving, grading, curbing and flagging portions of Front St. and Saybrook Pl.

**Newark, N. J.**—Contracts were awarded by Board of Freeholders Sept. 23 for construction of new pavement in sections of Wyoming Ave., South Orange and West Orange, and for reconstruction of Warrenite pavements on old telford bases on Broad St., Bloomfield, between town center and Bay Av., and on Valley road, Montclair, between Church St. and Normal Ave. Contracts for two latter jobs were awarded to Standard Bitulithic Co. and for other to Bamberger & Chapman, of East Orange. Successful bid for the contract for repaving Valley road, Montclair, covering 55,000 sq. ft., named \$86,450. The bid was 50 cts. per cu. yd. for excavating, 5 cts. per sq. yd. for scarifying, \$1.90 per net ton for crushed stone and \$1.31 per sq. yd. for the pavement. The Standard bid the same figures for the contract work on Broad St., Bloomfield, except as to the price of crushed stone, which was quoted at \$1.85 per net ton. The Bloomfield contract calls for about 24,000 sq. ft. of pavement. The entire contract cost amounts to \$37,515. A new asphalt block pavement will be laid on Wyoming Ave., between Ludington road, West Orange, and a point near South Orange Ave., at the village limits of South Orange. The bid of Bamberger & Chapman, totaling \$46,167, was as follows: Asphalt, per sq. yd., \$2.17; excavating, 32 cts. per cu. ft.; 3 culverts, \$910, \$460 and \$772; 18-in. pipe, \$1.81 per lin. ft.; manholes, \$45 each, and catch basins, \$55 each.

**New Brunswick, N. J.**—Abraham Jellin, of this city, was awarded contract for extraordinary improvements to section 1 of South Amboy-Keypont Rd. for \$41,



121.38. This road is to be improved with a brick pavement.

**New Brunswick, N. J.**—The awarding of contract for macadamizing of Rahway Ave. from Roosevelt to Blaizling Star Rd. by Board of Freeholders to Contractor Thomas F. Dunnigan of Woodbridge for \$26,767.39 will be carried up to Supreme Court for review on writ of certiorari by the Utility Construction Co. of this city. The latter company's bid was about \$400 lower than Dunnigan's but Board held company had not complied with requirements by failing to submit specifications as to their equipment for carrying out the contract. This made Dunnigan the lowest legal bidder.

**Glens Falls, N. Y.**—For construction of 4,800 sq. yds. concrete pavement and 1,500 cu. yds. old macadam excavation to R. J. Linehan, Glens Falls, N. Y., at \$1.10 per sq. yd. for paving and \$0.43 per cu. yd. excavation. E. W. Smith is City Engineer.

**New York, N. Y.**—For repaving Richmond Terrace in Boro. of Richmond, to J. E. Donovan, 2205 Richmond Terrace, at \$21,779.

**Niagara Falls, N. Y.**—Contract for paving of Eighth St. from Ferry Ave. to Walnut Ave. was awarded Sept. 21 by Public Works Board to McKinney & McGuire, low bidders on Metropolitan brick. Contract totals about \$8,000.

**Conneaut, O.**—For construction of 14,400 sq. yds. asphalt paving to John McCormick & Son, Erie, Pa., at \$29,843.65.

**Oak Harbor, O.**—By County Commissioners for 2,500 sq. yds. brick or asphalt paving to Modern Construction Co., Fremont, at \$5,606.

**Philadelphia, Pa.**—Senator McNichol, as a contractor, is going to build entire Parkway. He is completing this improvement between 19th and 22d Sts. and on Sept 21 he got contract for completing first section of Parkway, east of Logan Sq. by offering lowest bid for the work. Section which McNichol bid on lies between 16th and 17th Sts. There is \$15,000 available for work and it is estimated that \$50,000 more will be needed to complete job in all details. Senator Vare bid lowest for contract of grading Bigler St., 13th to 15th; 13th St., from Oregon Ave. to Bigler St., and 15th St., from Oregon Ave. to Bigler St. He bid 14 cts. a cu. yd., an unprecedented low price.

**South Bethlehem, Pa.**—Bids for construction of crossings and culverts are as follows: E. H. Neumeyer, 13½ cts. per sq. ft. for crossings and 50 cts. per sq. ft. for culverts; Daniel Del Grosso, 14 cts. per crossings and 14 cts. for culverts; S. L. Cyphers, 20 cts. for crossings and 60 cts. for culverts. Contract was awarded to Mr. Del Grosso.

**Memphis, Tenn.**—For paving with concrete on Claybrook St., 5,650 sq. yds., to George O. White & Co., \$9,011.

**Dallas, Tex.**—Contract for paving of Haynie Ave., University Park, Southern Methodist University addition, will be let by Myers & Noyes, engineers for the university. This will give the university grounds two long paved streets.

**Marshall, Tex.**—The County Commissioners have awarded contract to Smith Bros. for completing expenditure of \$300,000 for building of good roads. The two previous contracts let to this firm were for completion of roads to 5-mile limits, according to original agreement with the people. It now begins to appear that whole fund will not be exhausted by present contracts and that half-mile or more may be extended onto nine main roads.

**Temple, Tex.**—City Council has finally approved and accepted street paving put down by Levy & Levy of Dallas, which was completed Sept. 11, and has extended contract with contractors to cover \$50,000 additional paving, mostly in residence districts. City will supply \$21,000 of this amount, and interested property owners the remainder. New work will commence within ten days, and is prelude to another \$100,000 street paving campaign. When all is completed city will have 20 miles of brick and asphaltic concrete paved streets.

**Provo, Utah.**—The Provo City Commissioners have passed resolutions awarding Ryberg Bros. contract for paving three street districts. First contract is for \$20,618.87, second \$7,090.83 and third \$2,910. For first district P. J. Moran of Salt Lake, was lowest bidder, at \$19,371.64, against Ryberg Bros.' bid of \$20,618.87, but city commission decided for Ryberg Bros., since their specifications called for completing work in 70 days, while Moran's called for 90 days.

**La Conner, Wash.**—For paving sev-

eral streets with concrete, to N. W. Ball, Sedro-Wooley, at \$13,987.

**Seattle, Wash.**—For paving of 20th Ave. N. E. to N. Florito & Bros. at \$21,481.53.

**Columbus, Wis.**—For paving Madison and Otsego road and Broadway with bituminous macadam to Butler Constr. Co., of Waukesha, at \$6,826. W. A. Peirce, City Engr.

## SEWERAGE

**Mesa, Ariz.**—Bids will be advertised at once for construction of sewer system.

**Phoenix, Ariz.**—Council has instructed city engineer to prepare plans which would provide for deep sewer on McDonald St. from 1st St. to outfall of sewer.

**Stockton, Cal.**—City has taken the first step toward actual construction of big sewer system that is to be installed as result of sewer bond election held earlier in summer, when body accepted specifications for sanitary sewers in the southern part of city, and also passed resolution calling for bids on Oct. 1.

**Athens, Ga.**—At a called meeting of Mayor and Council Sept. 22 purpose of which, according to call, was primarily to act upon installation of short line of new sewer, initial steps were taken looking toward installation of incinerator plant for city for garbage disposal to do work for ten or fifteen years to come.

**Hartford City, Ind.**—County Surveyor Frank P. Wallace has given notice that bids will be received on Garr ditch work at 2 o'clock Wednesday, Oct. 20. The Garr ditch is to be 5,615 ft. in length.

**Clinton, Ia.**—Construction of modern sewer system in Fifth ward is urged.

**Muscataine, Ia.**—City will probably rent the Stewart sewer cleaner for cleaning sewers of city.

**Duluth, Minn.**—Three sewer jobs will be considered. They call for sewer in 7th St. between 17th and 18th Aves. E., in Water St. from 23d to 24th Aves. E., and in 11th St. from 7th to 8th Aves. E.

**Duluth, Minn.**—Sanitary sewers will be ordered in Magellan St., from 41st Ave. west; in 7th St., from 17th to 18th Ave. east; in Water St., from 23d to 24th Ave. east, and in 11th St., from 7th to 8th Ave. east.

**Atlantic City, N. J.**—Plans and specifications for addition to storm water drainage system in upper and lower sections of city as prepared by City Engineer Hackney, have been approved by Commissioners. The work calls for expenditure of about \$100,000.

**Caldwell, N. J.**—Borough will vote Nov. 2 on question of issuing sewer improvement bonds in sum of \$10,000.

**Newark, N. J.**—An error of \$10,000 in its bid has led William G. Sharwell & Co. to abandon contract for \$109,000 with Passaic Valley Sewerage Commission for construction of superstructure of proposed pumping station on Newark meadows. The Sharwell concern has served notice on Commission that it does not propose to prosecute the work, and will bring suit to recover certified check for \$2,000 which Commission has held to be forfeited by firm. Mr. Sharwell, on plea that mistake had been made in his \$109,000 bid, sought to be relieved of contract, which was awarded to him over a week ago. Commission took position that contractor had abandoned job and that, therefore, the \$2,000 could not be returned to him. Next lowest bidder for work was Essex Construction Co., which put in a figure of \$114,000.

**Newark, N. J.**—Board of Freeholders have passed a resolution to join with Montclair in improvement of Valley road in so far as laying of water and sewer pipe for house connections in unimproved sections is concerned. It was found desirable to lay these pipes at this time so as to do away with necessity of tearing up street for house connections after new pavement has been laid. Board also ratified agreement with Board of Works, whereby South Orange Ave., from South 20th St. to city line, will be improved, costs to be borne proportionately by city and county.

**Spring Lake, N. J.**—Question of disposal plant is being discussed. A number of councilmen seemed to favor the idea. It is said that Wall Township is not satisfied to have trash and garbage dumped within its limits. While no action was taken by council, the matter will likely be seriously considered before next year. Union motion of D. H. Hills, the 8-in. pipe connecting septic tank and the sewer outlet will be replaced by 12-in. pipe.

**Ventnor, N. J.**—Ordinance No. 10, providing for appropriation of \$14,060 for maintenance and operation of sewerage department, was passed on third and final reading.

**Rome, N. Y.**—At regular meeting of Common Council City Engineer John L. Plunkett presented plans and estimates for laying following extensions of city sewers: Liberty St., 500 ft. west of Dextater Ave., \$298; James St., 400 ft. north of Pine St., \$246.40; Albert St., 500 ft. north of Locust St., \$298. The plans were approved.

**Coshocton, O.**—Resolution has been adopted for construction of sanitary sewer on 11th St. from Oak Ave. to Chestnut St.

**Mansfield, O.**—Ordinance has been adopted determining to proceed with improvement of Sturges Ave. from Blanch St. to Grover St. by constructing 8-in. sanitary sewer in center of said street, and authorizing issuance and sale of bonds to pay for said improvement.

**Middletown, O.**—City Commission has passed ordinance authorizing issuance of sewer bonds in sum of \$15,000.

**Urbana, O.**—Installation of W. Water St. storm sewer is being planned as soon as funds are available.

**Youngstown, O.**—Resolution has been adopted for construction of sewer in Market St.

**Cushing, Okla.**—At special election held Sept. 20, bonds in amount of \$30,000 for intercepting sewers carried by good majority. Plans and specifications for this work will be submitted to the City Council by the Benham Engineering Co., consulting engineers for the city of Cushing. The bonds have been sold.

**Chester, Pa.**—Sewerage plans are being considered for Aldan, Clifton Heights and Upper Derby.

**East Washington, Pa.**—Permit has been issued for sewer extensions.

**Greensburg, Pa.**—Permit has been issued for lateral sewer extensions.

**Philadelphia, Pa.**—Permit has been issued for intercepting sewers and sewage treatment works.

**Ridley, Pa.**—Commissioners of Township, Delaware county, have been given permit to secure sewage disposal site.

**Seranton, Pa.**—Permit has been issued for sewerage construction.

**Westfield, Pa.**—Permit has been given for sewer system and sewage treatment plant.

**Sharon, Pa.**—Ordinance authorizing an election for voters to pass on bond issue for \$185,000 for purpose of laying sanitary sewers and construction of sewage disposal plant, was passed at a special meeting of Council Sept. 21.

**Williamsport, Pa.**—City engineer's map and sewer plan was adopted and ordered sent to state health department for approval.

**Woonsocket, R. I.**—Resolution appropriating \$6,000 for construction of surface water drains in Carrington Ave. and Maple St. has been approved.

**Waco, Tex.**—At meeting of city commissioners Oct. 19 was selected as date for bond election, at which time taxpayers will decide whether they favor issuing bonds to amount of \$100,000. Of this sum \$75,000 is intended for sewage disposal plant, \$15,000 for sewer extensions and \$10,000 for bridges.

**Milwaukee, Wis.**—In special session the City Council received again ordinance to authorize bond issue in sum of \$400,000 for sewerage commission to finance construction of sewers and experiments on disposal of sewage.

**Sheboygan, Wis.**—Bids will be advertised for excavating and concreting sewage well at intersection of Bell Ave. and North 13th St.

## CONTRACTS AWARDED.

**Marysville, Cal.**—Stanley & Olander, of Sacramento, were lowest bidders on work of extending city's storm sewer from its present outlet at E and 10th St., distance of 2,100 ft., to intersection of D and 14th Sts., and they were awarded contract by city council. Firm agreed to begin the work, which includes 5 manholes, by Oct. 1, and to complete job by Jan. 25, 1916. They also agreed to employ only local help, aside from their expert, and pay minimum wage of \$2.50 a day. Their bid is \$13,550. Other bidders on this portion of municipal improvements on west bank of Ellis Lake, provided for in recent bond election, were: J. W. Terrill, Sacramento, \$14,000; I. C. Evans, Marysville, \$15,200; F. F. Moore, San Francisco, \$13,595. Contract for three units of fill in same district was awarded to

Hewitt & Felch, the only bidders, on basis of 43 cts. a cu. yd., or total of \$14,710. This work includes extension of D St. from 9th St. to 10th St. at width of 50 ft., filling of 9th St. from D to E St., and the filling of present outlet of storm sewer.

**Ocala, Fla.**—To Bryan & Co., Jacksonville, at \$66,741, for constructing sewerage system consisting of 121,203 ft. 6 to 18-in. sewer pipe, 231 manholes, 61 automatic flush tanks, sewage disposal plant, etc.

**Fort Wayne, Ind.**—Resolution No. 249, providing for vitrified clay pipe sewer in Newhaus' addition. Contract was awarded to the Moellering Construction Co. on bid of \$1.39 per lin. ft. Other bidders, Anton Rieg, \$1.54; Fred H. Fuelling, \$1.45. Resolution No. 250, providing for sewer in the alley between Alexander and Abbott Sts. Contract awarded to Anton Rieg on his bid of 64 cts. per lin. ft. Other bidders, Fred H. Fuelling, 68 cts.; Moellering Construction Co., 73 cts. Resolution No. 251, providing for sewer in the alley south of Pontiac St. and in Wayne St. from Francis to Harmar St. Contract awarded to Moellering Construction Co., only bidder, for 82 cts. per lin. ft.

**South Bend, Ind.**—Contracts have been let to Staples & Ackerman, local contractors, for construction of pipe sewer in Calvert St. and for water connections on Indiana Ave. The amounts were respectively \$1,414 and \$826.50. Contract for pipe sewer in Golden Ave. went to Hoban & Roach, local contractors, for \$236.88.

**Clinton, Ia.**—Proposals of Thomas Carey & Sons, local contractors, for constructing sewer systems in Fourth and Fifth wards, Clinton, were accepted by Clinton City Council at adjourned meeting Sept. 15, and work is to be commenced immediately on two big construction jobs. Contract price, Division "A," Fourth Ward, \$60,016.90; contract price, Division "B," Fourth Ward, \$30,008.63; contract price, Fifth Ward, \$34,831.85; total cost, \$124,857.38. Material—Vitrified brick and pipe.

**Decorah, Ia.**—To Moore-Sig Construction Co., of Waterloo, at \$101,693, by Council, for installing new sewerage system.

**Muscataine, Ia.**—Sewer construction contracts have been awarded as follows: sub-sewerage Dist. No. 31 of Main No. 1 let to Wingerter & Kinsley, Muscatine, 134 ft. 15-in. paving, 99½ cts., \$133.33; 855 ft. 15-in. paving, 82 cts., \$701.10; 4 manholes, \$30, \$120; 6 catch basins, \$19, \$114; 190 ft. catch basin connection, 12-in., 50 cts., \$95; total, \$1,163.43. Sub-drainage No. 5, Main No. 2, Wingerter & Kinsley, 550 ft. 10-in. pipe, 58 cts., \$319; 1 manhole, \$25; 6 catch basins, \$19, \$57; 110 lin. ft. catch basin connections, 50 cts., \$55; total, \$456. Main trunk sewer, 500 ft. 3'x4' concrete curb at \$3.74 per ft.; total, \$1,870. Sewer District No. 5, of Main No. 3: 825 lin. ft. 8-in., 84 cts., \$693; 1,235 lin. ft. 15-in., \$1.24, \$1,531.40; 450 lin. ft. 18-in., \$2, \$900; 325 lin. ft. 24-in., \$1.70, \$552; 12 manholes, \$35, \$420; 14 catch basins, \$20, \$280; 540 lin. ft. catch basin connections, 50 cts., \$270; total, \$4,646.90. C. H. Young, City Engr.

**Muscataine, Ia.**—A Muscatine concern, the Ziedler Concrete Culvert Co., will secure contract for pipe, a proviso in specifications stipulating that local product must be used. Estimated cost of drainage improvement approximates \$20,000.

**Lexington, Ky.**—The Carey-Reed Co. was awarded contract to build sewer through the Jaubert property between West Short and West Main Sts., their bid of \$419 being the lowest received.

**Boston, Mass.**—For construction of pipe sewers and drains in Hazleton St., Dorchester, to T. Coughlin at \$184; in Lanark Rd., between Kilsyth Rd. and Colliston Rd., Brighton, to Jas. L. Pierce & Co. at \$473.30; in Hubert St. and outlet in alley 1103, Roxbury, to Anthony Baruffaldi at \$2,899.42, and in Telford St. outlet, on Telford St. and Charles River Reservation, between Charles River and Western Ave., Brighton, to Anthony Baruffaldi at \$9,071.91.

**Grosse Pointe Park, Mich.**—To Theodore Marcler, 470 Hancock Ave. W., Detroit, at \$18,300, to construct about 4,000 ft. of lateral sewer.

**Reed City, Mich.**—To Reniger & Wells, of Marshall, Mich., at \$19,884, for installation of sanitary and storm sewer system and sewage disposal plant. Work consists of 19,300 ft. of sanitary sewers, 8 to 18-in., 3,200 ft. of storm sewers, 8 to 18-in., 51 manholes, 8 drop-manholes, 8 flush tanks, 14 catch basins and 1 sewage treatment plant.

**Rochester, N. H.**—For 8,100 ft. of 8 to 12-in. sewer pipes to C. W. Foss Co., Fitchburg, Mass., at \$9,163.

**Newark, N. J.**—Contract for laying about 10,000 ft. of drainage pipe in Valley road, Montclair, awarded to the Cestone Construction Co., was let on the following bids, per lin. ft.: 12-in. pipe, 57 cts.; 15 and 18-in., 87 cts.; 20-in., \$1.07; 24-in., \$1.17; 12-in. cast iron pipe, \$2; 15-in., \$3, and 20-in., \$4; manholes, \$37 each, and catch basins, \$42 each.

**Albany, N. Y.**—By Board of Contract and Supply for sewage pumping stations to Foundation Co., Woolworth Bldg., New York, at \$172,772.

**Rochester, N. Y.**—By Board Contract and Supply, to Michael Ripton, Rochester, for constructing Graves St. sewer tunnel to connect with Main and Front St. tunnel, at \$11,899.

**Schenectady, N. Y.**—The Albany St. sewer job was awarded to Ellis B. Edgar, his bid being lowest at \$2,956. The other bids were: John Allen, \$4,575; T. F. McGregor, \$3,775; T. R. Crane, \$3,885.

**Utica, N. Y.**—Board of Contract and Supply has awarded work of laying a sewer in Blandina St. to Frank M. Johnston, the only bidder. The price is \$967.50.

**Hamilton, O.**—By city board of control to F. J. Davis for construction of storm sewer on Edison Ave., at \$424.08.

**Port Clinton, O.**—Results of bids received for construction of Madison St. sewer were as follows: Marsman & Green, Bowling Green, \$3,365.26; Glaser & Hetrick, Oak Harbor, \$4,174.57; Richard Schafer, Findlay, \$3,182.70; Carl Wels, Flint, Mich., \$3,161.78; J. L. Smith, Bucyrus, O., \$2,959.53; Huber-Leib Heating & Plumbing Co., \$3,055.46; Rimelspach & Thoma, Fremont, O., \$2,864.25. Council awarded the contract to Rimelspach & Thoma. Wm. H. Willamsen is Village Clerk.

**Richmond, Va.**—By Administrative Board for sewer in Scott's Addition to Leroy E. Newton at \$11,601.

**Milwaukee, Wis.**—To A. J. Hewitt, Milwaukee, for constructing 7 ft. tunnel sewer under Lake St., from Green Bay Ave. to Milwaukee River, at \$160,000.

## WATER SUPPLY

**San Francisco, Cal.**—The National Board of Fire Underwriters having recommended that San Francisco's high pressure system be extended, city engineer has requested Supervisors to allow him \$250 for preparation of report as to what mains can be laid with money remaining in high-pressure bond fund, amounting to about \$17,000. He suggests that annual budget appropriations be made for laying additional mains. City has plenty of pipe on hand. Plans called for about 91 miles of pipe, which quantity was purchased. About 71 miles have been laid.

**Galesburg, Ill.**—Ordinance authorizing submission of bond issue of \$95,000 for ratification by vote of people on Oct. 19, was passed, with but one dissenting vote, at regular meeting of City Council. The money is to be used for sinking large artesian well, for construction of new reservoir, for laying water mains and necessary appurtenances, and for improvement of electric light plant.

**Galesburg, Ill.**—Ordinance has been passed for issuing bonds for \$95,000 for paying necessary expenses of further developing additional water supply for city of Galesburg, by sinking artesian well of large diameter, installing of necessary machinery, laying of water mains and necessary appurtenances, building of additional reservoir and improvement of electric light plant.

**Kanawha, Ia.**—Bids will be received until 2 p. m., Oct. 15, for a 30,000-gallon steel tank on an 80-ft. tower, and 7,000 ft. of 4 to 8-in. mains. Chas. P. Chase, Clinton, Ia., is Engineer. F. L. Bush is Mayor.

**Traer, Ia.**—Bids will be received until 2 p. m., Oct. 4, for water works pump. Bids will be considered on either rotary, centrifugal or triplex pump, capacity 300 G. P. M. Specifications may be had of Chas. P. Chase, Consulting Engineer, Clinton, Ia. T. F. Stoakes is Town Clerk.

**Emporia, Kan.**—Within six months it is likely that people of Emporia will be called upon to vote upon bond proposition looking to improvement of Emporia water system along line suggested by

water committee's report made by Martin water committee to Commercial Club. It has been announced that Black & Veatch, a firm of engineering experts, had been hired for \$300 to make preliminary survey of water situation, and to prepare plans for improvement of the Neosho water plan following lines of water committee's report.

**Shreveport, La.**—The Shreveport Waterworks Co. having declined to sell its property for \$750,000, amount offered by City Council in reply to company's proposal to sell for \$1,415,000, the Council has ordered an election for Nov. 4 on proposition of issuing \$1,200,000 of bonds to build municipally-owned water and sewer system.

**Pittsfield, Mass.**—Finance committee of City Council has voted to recommend the adoption of order calling for \$2,000 for water connections and another order for \$150 for gutters on Onota St.

**Peabody, Mass.**—Commission of Public Works have voted to extend water pipe 150 ft. in Orchard St.

**Macon, Mo.**—Bids for erection of new filtration plant and extension of municipal water mains aggregating \$24,342.22 have been accepted by City Council. Twenty-four bids were received from contractors all over state. From these committee of two councilmen from each ward selected successful ones. Work will begin soon.

**New Brunswick, N. J.**—Improvements to city water works at estimated cost of \$150,000 have been recommended to commissioners by City Engineer Asher Atkinson, who has drawn up plans and specifications and has made thorough study of the matter. In order to place water supply in adequate and safe condition, four general improvements should be made: A—Reserve pumping equipment. B—Additional storage. C—Filtration. D—Increased pressure.

**Perth Amboy, N. J.**—Residents of Carlock Ave. have presented petition to Board of Water Commissioners at regular meeting of that body, asking that main be laid in that thoroughfare between Brace and Bingle Sts. so that they might be supplied with water. To lay a main there will take about 600 ft. of pipe. The petition, upon motion, was referred to pipe committee. City Engineer has been instructed by motion to advertise for bids for construction of pump foundation and engine room extension at Runyon, estimates to be received Oct. 6 at 8.30 o'clock.

**Ventnor, N. J.**—Ordinance No. 9, providing for appropriation of \$28,193.98 for maintenance and operation of Water Department, was passed on third and final reading.

**Ventnor, N. J.**—Ordinance No. 13, providing for issuance of bonds in amount of \$35,000 for enlarging and improving water works, passed on third and final reading.

**Niagara Falls, N. Y.**—At meeting of water board estimates for new mains that City Engineer Parkhurst recommended should be laid this fall were received. Total estimated cost is \$9,330.70. All are 6-in. mains. Matter was laid on table for consideration at next meeting.

**Niagara Falls, N. Y.**—The \$38,000 issue of water bonds have been sold to George P. Gibbons & Co., of New York. Funds will be used for extension of water mains.

**Wilson, N. C.**—See "Miscellaneous."

**Lima, O.**—Council has provided \$1,000 for employment of consulting engineers to advise city as to new water supply, choice of engineers to be left to service director.

**Athens, O.**—City Council has authorized issuance of water works bonds in sum of \$50,000.

**Marletta, O.**—Council has ordered drilling of test wells along Muskingum with view of completely changing Marletta's source of water supply and rebuilding water plant.

**Salem, O.**—Service Director I. N. Russell has signed contract with J. W. Sherman Co., of Toledo, for hydraulic engineer to come to this city and take survey of water situation.

**Beaverdale, Pa.**—Permit has been issued to Summit Water Supply Co. for intake dam and gravity supply line.

**Hatfield, Pa.**—Municipal water works will install distributing system and drilled wells.

**Hellertown, Pa.**—Ordinance has been adopted providing for extension of water supply of borough of Hellertown by running of pipe line from reservoir of present water supply to spring located on premises of George Sloyer.



**Jamestown, Pa.**—Water company has permit for drilled wells.

**Langhorne, Pa.**—Permit has been given Langhorne Spring Water Co. for modifications in water filtration plant.

**Lilly, Pa.**—The Summit Water Supply Co. has been given permit for intake dam and extensions to supply lines.

**Mauch Chunk, Pa.**—The Mauch Chunk Water Company has been given permit for new source of supply from drilled well and reservoir.

**Pine Grove, Pa.**—Municipal water works will install storage reservoir and gravity supply main.

**Reynoldsville, Pa.**—The Reynoldsville Water Co. has been granted permit to install drilled wells.

**Stroudsburg, Pa.**—Permit has been given to Stroudsburg Water Supply Company for temporary disinfection apparatus.

**Summit Hill, Pa.**—Water company has been granted permit to install steel standpipe and extensions to distributing system.

**Youngsville, Pa.**—Permit has been issued to municipal water works for distributing system and drilled wells.

**Dallas, Tex.**—The light wagon which has hauled Oak Cliff water department repair force and materials will be replaced by automobile truck. Board of Commissioners has ordered purchase on recommendation of Commissioner Cason.

**Fort Worth, Tex.**—That bond issue will be asked as means of completing city water system and providing sewage disposal plant has been stated by Mayor E. T. Tyra. Just when vote will be taken or amount that will be asked are matters that cannot be known until report has been received from Holman & Laird, the hydraulic engineers of St. Louis, who made survey of water system.

**Williamsburg, Va.**—A mass meeting of citizens of Williamsburg will be held at courthouse on night of Sept. 27, to discuss water and sewerage question. A \$30,000 bond issue will be voted on.

**Seattle, Wash.**—Plans have been received from engineer for water main on Dexter Ave., to cost \$32,000.

**Niagara Falls, Ont., Can.**—Stamford council has decided to open negotiations with city water board to connect Stamford and city water works, in order that one municipality might use water from other in cases of big fires or breakdowns.

**Prince George, B. C., Can.**—Election has resulted in favor of issuing water works, electric light, street improvement and city hall bonds in sum of \$150,000.

#### CONTRACTS AWARDED.

**San Francisco, Cal.**—Board of Works have awarded contracts to Ingersoll-Rand Co., and Rix Compressed Air Co. for air compressing plant and drills for use of Hetch Hetchy. It received bids for clearing portion of Hetch Hetchy reservoir site, lowest bidder being Karl Ehrhart, whose price was \$24,984.50. The other bids were A. J. Reeder, \$43,987; McArthur Bros., \$45,217.75.

**Bridgeport, Conn.**—On recommendation of City Engineer Terry pump for station under last contract will be one made by Henry R. Worthington Co., of Harrison, N. Y.

**Lava Hot Springs, Ida.**—To Anton Jensen, of Preston, by Campbell Bros., for installation of water works system, for \$13,925.

**Quincy, Ill.**—By Board of Supervisors. Fabius River Drainage District, for pumping station and equipment to Purdy & Henderson and United Engineering Co. Estimated cost, \$60,000.

**Silvis, Ill.**—To S. Shadt, city, by Village Board, at \$2,296, for construction of water reservoir, capacity about 121,000 gals.

**Boston, Mass.**—To Henry Spinach Contr. Co., American House, for laying 11,400 ft. water pipe, at \$17,331.

**Boston, Mass.**—For laying 16-in. water pipes in Massachusetts Ave. from Huntington Ave. to Boylston St., city proper, to M. De Sisto at \$1,550.50.

**Kalamazoo, Mich.**—The Edwards & Chamberlin Co. were given order for 600 ft. of galvanized iron pipe to be used in water department. They were lowest bidders, their price being \$5.32 per cwt.

**Chinook, Mont.**—To Pittsburgh Filter Mfg. Co., for installing filtration plant, at \$16,415.

**Burlington, N. J.**—Common Council has awarded contract for pump and piping at drainage place to R. D. Wood Co. for sum of \$5,397, and contract for erection of

building was awarded to Hugh Miller, of Edgewater Park, for \$1,484. Bids for electric wiring were rejected.

**Lockport, N. Y.**—Contract for new Market and Mill St. water mains has been awarded to C. B. Whitmore Co. at \$15,890.

**Lockport, N. Y.**—Two contracts were awarded to C. B. Whitmore Co., on Sept. 20, one for drain and water pipe in Elmira St., on their bid of \$534, and for similar improvements on Irving St. and Beverly and Grove Aves., their figures for this work being \$5,270.

**Shortsville, N. Y.**—In connection with new water system which is about to be installed in village of Manchester, following contracts have been awarded: For trenching, pipe laying, foundation for pump, pump house, etc., George H. Bliven and Ben O. Beal, of Rochester, \$23,418.63; for stand pipe, Tibbett & Wood, Phillipsburg, N. J., \$4,696; for pumps (two) contract not awarded but will probably go to the Goulds Mfg. Co., Seneca Falls, N. Y., for \$1,150; for valves, hydrants, valve boxes, Eddy Mfg. Co., Watford, N. Y., \$1,418.45.

**Brewster, O.**—For constructing water works, to Ross-Cook Eng. Co., 193 Crosby St., Akron, at about \$19,000. The W. J. Sherman Co., The Nasby, Toledo, are engineers.

**Cleveland, O.**—By Board of Control as follows: To Nassau Smelting Co., for pig lead for division of water at \$23,300 and to T. H. Brooks & Co., for structural steel for Division Ave. pumping station, at \$40,936.

**Findlay, O.**—To United States Cast Iron Pipe & Foundry Co., Chicago office, for furnishing about 48 tons 6-in. cast iron pipe, at \$22.50 per ton.

**Hamilton, O.**—By city board of control to Scioto Valley Supply Co., to furnish 3,000 ft. of 4-in. water pipe at \$27.79 per 100 ft. Also to Badger Water Meter Co., Milwaukee, Wis., to furnish 250 ½-in. water meters at \$6.20 each; 20-in. meters at \$9.55 each, and ten 1-in. meters at \$13.50 each.

**Maumee, O.**—For water system to T. C. Brooks & Sons, Jackson, Mich., at \$49,753.

**Somerset, Pa.**—For constructing 500,000-gal. reservoir, to W. J. Ferner, of Somerset, at \$4,500.

**Quebec, Que.**—By Quebec Streams Comm., for constructing storage dam at outlet of Lake St. Francis to George Madden at \$101,028.

**Vebien, S. D.**—For water system to Tanner Bros., at \$25,000.

**Dallas, Tex.**—Contract for erection of pumping plant has been awarded to Kinnison Bros. of Dallas. The pumping plant is one of the most complete installed in Dallas, and, with motors, will cost about \$3,000. The engineers estimate artesian well has capacity of 600,000 gallons per day, sufficient to care for the university and nice sized town.

#### LIGHTING AND POWER

**Birmingham, Ala.**—Acting upon recommendation of Julian Kendrick, city engineer, city commission has instructed him to receive bids for improvements to be made to city's lighting plant at North Birmingham.

**Graymont, Ga.**—Election has resulted in favor of issuing electric light bonds in sum of \$5,000. J. M. Thompson is City Clerk.

**Summit, Ga.**—Election has resulted in favor of issuing electric light bonds in sum of \$5,000. K. Johnson is City Clerk.

**Galesburg, Ill.**—See "Water Supply."

**Elkhart, Ind.**—Board of public works has submitted to Indiana & Michigan Electric Co. seven propositions for lighting city. Company has maintained that it had no definite data on which to make prices. Propositions are accompanied by map of city showing approximate location of all lights thought necessary. The first proposition asks company at which price it will install, equip and maintain not less than 300 100-candle power Tungsten or Mazda lamps, with refractors, lamps to be suspended not less than 15 ft. from the ground on arms not less than 15 ft. long. The second proposition is for what are known as center suspension lamps for not less than 60 600-candle power Mazda C lamps with refractors, using the present equipment as far as possible. The third proposition is the same as the second with the exception that 400 candle power lamps are to be used. The fourth proposition is for 150 250-candle power lamps installed the same as in propositions two and three. The fifth proposition is for the same equipment as in the fourth with the ex-

ception that the lamps are to be not less than 15 ft. from the ground and on arms not less than 15 ft. long. The sixth proposition asks for a price to light, equip and maintain the 60-watt Tungsten lamps now used in the alleys. There are about 90 of these. The seventh proposition is for the installation, equipment and maintenance of a park post system on Main St. from Tyler Ave. to Jefferson St. as "per plans and specifications now with the board." These plans and specifications are the same that have been before the board and the Council recently.

**Portland, Ind.**—Bids will be received for construction of addition to power plant. Addition will be about 10x21 ft., for housing of transformer.

**Richmond, Ind.**—Petition is being circulated asking for permission to erect ornamental cluster lamps on principal business streets of city.

**Mondamin, Ia.**—Town Council has met with Town Council of Modale to talk over proposition of building line from here to Missouri Valley over which to get electricity with which to light two towns. If this plan is not carried out, Mondamin will probably put in plant of its own within a short time.

**Garden City, Kan.**—The City Commission has called election for Oct. 6 to vote on proposition to purchase telephone exchange and electric light properties of Marsh Co. It is bond proposition of \$60,000 to purchase telephone and electric lighting plant and works of the Garden City Telephone, Light & Manufacturing Co.

**Lawrence, Kan.**—The specifications of new white way have been approved, and city attorney instructed to prepare form of advertisement for bids.

**Big Rapids, Mich.**—Erection of new \$50,000 power plant at Morley, for supplying electric current to Howard City, Lakeview, Edmore, Morley and possibly Stanwood is in prospect as result of negotiations between Detroit capitalists and officials of Little Muskegon Power Co. Sale of power company's dam and flowage rights on Little Muskegon, at Morley, is proposed.

**St. Paul, Minn.**—New specifications for maintenance of gas street lamps will be presented to City Council by Commissioner Keller with his recommendation that they be approved and that purchasing agent be instructed to advertise for bids on contract to take place of one now in force between the city and the Paterson Street Lighting Co. The new specifications provide for two years' contract instead of for a single year and bid price will include charge for maintenance, together with price of equipment, which will pass to city ownership at end of contract period.

**Milan, Mo.**—The Commercial Club of Milan and different women's clubs have started campaign to get money to purchase electric street lights for the town square and make it a "white way" at night.

**Butte, Mont.**—Bids may shortly be called for by city clerk for installation of ornamental lamps on Park, Main, Broadway, Dakota, Montana, Arizona and Wyoming Sts.

**Dubois, Neb.**—Election has resulted in favor of issuing electric light bonds in sum of \$7,000.

**Ord, Neb.**—Notice for bids has been published to furnish city of Ord material to install series incandescent street system. Bids are also asked for light system and electroliner lights, furnishing material and installing various electric pumping equipment and power house machinery and building 2 pump houses.

**Caldwell, N. J.**—Borough Council is contemplating installation of additional street lamps on Arlington, Myrtle and Park Ave.

**Milville, N. J.**—Installation of "white way" system is being considered for High St.

**Perth Amboy, N. J.**—Plans for converting lower portion of Water St. into attractive boulevard by night through construction of white way system, were among several subjects taken up at committee meeting of Board of Aldermen Sept. 17.

**Trenton, N. J.**—Installation of ornamental street lighting system on Ardmore Ave. is contemplated.

**Beacon, N. Y.**—On recommendation of lighting committee, City Council has voted to install new "white way" lighting system on Main and Beekman Sts. Eighty lights will be placed on Main St., 75 ft. apart, staggered across thoroughfare. Sixteen lights will be placed on Beekman St. at distance of 135 ft. Units

will be 600 candle power nitrogen lamps placed on ornamental iron poles similar to those now on exhibition in west end of city, and very similar to those in Newburgh. Cost is estimated at \$6,000. Merchants on these two streets will be asked for contribution to help defray expense.

**Herkimer, N. Y.**—Better lighting of Main St. is advocated.

**Ithaca, N. Y.**—A committee of Business Men's Association, composed of Fred B. Atwater, chairman; Nathan Hanford, Sidney L. Howell, R. A. Causer and E. B. Baxter, has been appointed to investigate boulevard lighting project. It is hoped to erect sixty of new lights on five principal business streets according to plans of this committee, which has drawn up specifications for new lighting system and has turned them over to civic bodies. New system will cost between \$4,000 and \$6,000. The lights, if favorable action is taken by business men, will be placed along State, Aurora, Tioga, Seneca and Cayuga Sts. for distances of from two to three blocks. The lights would be 125 ft. apart on side and alternating.

**Watertown, N. Y.**—Several petitions asking for extension of the ornamental lighting system were received at meeting of board of public works Sept. 17. Residents of State St. petitioned that system be extended in State St. from Polk to High. Six ornamental three-light standards were authorized to be constructed in Arcade St., and as result of petition from property owners in section, two more lighting posts are to be added to Mill St. at its intersection with Main.

**Wilson, N. C.**—See "Miscellaneous."

**Bellefontaine, O.**—City Council has authorized issuance of street lighting bonds in sum of \$10,000.

**Green Camp, O.**—Village is planning to erect transmission line 4 miles long and install street lighting system. H. O. Fisher, of Toledo, is engineer.

**Lima, O.**—Resolution has been adopted declaring necessity of an emergency for issuing of bonds to City of Lima, O., in sum of \$60,000, for purpose of erecting works for the generation and transmission of electricity for supply of electricity to city of Lima, O., a municipal corporation.

**Lima, O.**—Council has ordered submission at fall election of \$60,000 bond issue for boulevard lighting system in business district and municipal plant to furnish electricity for system.

**Marietta, O.**—Resolution has been adopted declaring it necessary to issue bonds in sum of \$45,000 for purpose of erecting works for generation and transmission of electricity for supplying electricity to corporation and inhabitants.

**Washington Court House, Ohio.**—H. Whitford Jones & Co., consulting engineers, have prepared plans for new street lighting system which have been agreed to by the Washington Gas & El. Co., and work will begin at once on installation of new system. This includes 685 nitrogen-filled lamps of various sizes, 212 of which will be used in connection with ornamental standards in the business district. The contract with the company is for period of 10 years.

**Ellwood City, Pa.**—Since cluster lighting system has been installed on new bridge in this city, the opinion is that this system should be used on main thoroughfares of borough. This would really amount to establishment of a "white way" for Ellwood. Matter is being considered.

**Williamsport, Pa.**—When bids for street lighting were opened by council Sept. 20 it was found it would be largely to interest of city to let contract to Lycoming-Edison Co. for period of three years. The Lycoming-Edison Co. bid \$39.60 per lamp for a three years' contract and \$50 for both 5 and 10 years' contract. The Citizens Co. only bid on 10 years' contract and its figures were \$49.74.

**Enosburg Falls, Vt.**—The Electric Light Commissioners are making preparations for installations of electric lighting system to replace gas lamps now in use. Tungsten lamps will be installed.

**Sheboygan, Wis.**—Installation of ornamental lighting on 8th St. is being planned.

**Niagara Falls, Ont., Can.**—City council has decided to meet later in week for discussion of proposition to buy power for municipal lighting plant from Hydro-Electric Commission.

**Niagara Falls, Ont., Can.**—Preliminary steps towards incandescent lighting systems in all streets north of Simcoe St. were taken Sept. 17, when it was decided to call for bids on work of making change. The old arc lamps now in use will be used to better illumination of side streets throughout city. It is expected cost of making change will be in neighborhood of \$4,000.

#### CONTRACTS AWARDED.

**Hammond, Ind.**—By city, contract with Northern Indiana Gas & Electric Co., of Hammond, for lighting streets of city for period of ten years. Contract calls for use of nitrogen-gas-filled lamps, and also fixes rate for five-lamp clusters at \$48 per year.

**Broken Bow, Neb.**—For second time City Council has awarded contract of building new electric light and water plant to the Alamo Co. of Omaha. The price to be paid is \$15,954. The first contract with Omaha people was cancelled on account of technical error.

**Plattsmouth, Neb.**—Mayor Ritchey has signed ordinance granting contract to Nebraska Lighting Co. for term of five years. The library board has decided on location for new library.

**Bridgeton, N. J.**—The Millville Electric Light Co. will be awarded contract for electric lighting of city.

**Millville, N. J.**—The Millville Electric Light Co. was awarded contract to furnish new electric system for lighting. Millville streets by City Commission for \$9,419.50, which was lowest bid. Engineer W. S. Temple, of Philadelphia, who was employed by city, claims that under contract Millville will be the best lighted city in this part of the state.

**South Amboy, N. J.**—Contract will be entered into with Middlesex and Monmouth Electric Light, Heat and Power Co., of Keyport, for electric lighting in Stevens Ave.

**Potsdam, N. Y.**—Village Board of Trustees has practically completed contract with Potsdam Electric Light & Power Co. for installation of eight incandescent lamps on steel poles in Depot St. Lamps are 600 candle power each and will cost village \$52 per year. After five years if village wishes it, may purchase equipment at figure determined on by unprejudiced parties. In addition to eight lights of village railroad will install three of similar pattern, on its property leading from station down to foot of Depot St.

**Granite Falls, N. C.**—The Granite Falls Mfg. Co. has closed contract with town of Granite Falls to furnish lights. Company will raise dam 27 ft. at cost of several thousand dollars, and develop 400 horse-power to be used in lighting town and running the mills.

**Hickory, N. C.**—The Granite Falls Mfg. Co. of Granite Falls has closed contract with town for furnishing electric lights for period of 30 years, and as soon as plans and specifications are ready company will order work of raising dam of its plant there 27 ft., which will develop 400 horse power, instead of 175, as at present. Additional cost of raising dam and putting in electric drive will be \$40,000. It is estimated by engineers that five thousand yards of concrete will be required in the work.

**Cleveland, O.**—For ornamental lamp-posts, to Union Metal Mfg. Co., at \$12,870.

**Sandusky, O.**—For installation of service wire conduits for ornamental street lighting system in business district, to H. W. Homberger, at \$8,152.

**Dallas, Tex.**—City Council of Highland Park, with some slight changes, has ratified contract with Dallas Electric Light & Power Co. for installing ornamental street lights and authorized mayor and secretary to sign contract. Company agrees to put in lighting system for \$9,500.

#### FIRE EQUIPMENT

**Tustin, Cal.**—Purchase of fire fighting outfit to cost \$500 has been recommended.

**Hartford, Conn.**—Installation of new alarm system is urged by Chief John C. Moran.

**Freeport, Ill.**—Installation of alarm system may be considered shortly.

**Peoria, Ill.**—City Council is planning to purchase new fire equipment.

**Rockford, Ill.**—Board of Underwriters has recommended installation of additional apparatus.

**Streator, Ill.**—Streator will have opportunity to vote on question of motoriz-

ing fire department, and of providing combination motor police patrol and ambulance, at special election to be held on October 26. This step forward was made when City Council unanimously passed ordinance providing for bonding of city for \$16,000 to make the improvement and then another ordinance providing for special election to vote on bond issue.

**Muscatine, Ia.**—Complete motorization of Muscatine fire department is expected to take place within sixty days. Purchase of two additional trucks was authorized by City Council this week. The International Motor Truck Co. of New York City was awarded contract for two combination hose, chemical and ladder truck of seven men capacity, and these will supplement present equipment. New stations in residential districts will be built to accommodate trucks and later chief's motor car is to be purchased. Next several months will witness passing away of largest and oldest active volunteer fire department in Iowa.

**Pittsburg, Kan.**—Motor fire car will be purchased for fire chief. A White machine has practically been decided on to cost \$2,700. It is equipped with a 30-gallon chemical tank and 200 ft. of chemical hose.

**Louisville, Ky.**—Erection of two new fire stations is recommended.

**Plaquemine, La.**—City is contemplating the purchase of modern motor truck and 500 ft. of hose and also expects to install new fire alarm system in near future. L. B. Leblanc is Fire Chief & City Clerk.

**Somerville, Mass.**—Plans are being prepared for new alarm headquarters building.

**South Lyon, Mich.**—Village council is contemplating purchase of chemical engine.

**Joplin, Mo.**—Mayor McIndoe has been authorized to ask for bids on 1,500 ft. of fire hose and also on some reducers and other minor equipment. These bids will be opened October 5.

**Hoboken, N. J.**—Fire Chief M. A. Dunn is urging purchase of two tractors, four chasses, 3 motor pumping engines, 1 motor triple combination wagon, an aerial truck, and a chief's car.

**Linden, N. J.**—Erection of fire station, installation of alarm system, and purchase of apparatus is contemplated by Township Committee.

**Maywood, N. J.**—Fire chief urges the purchase of 1,000 ft. of hose.

**Mountain Lakes, N. J.**—Each resident of Mountain Lakes is being solicited for subscription to purchase fire apparatus and install fire alarm system. A committee appointed by Mountain Lakes Association met recently and decided that automatic alarm system with five or six boxes, connected with residences of fire department officers and Mountain Lakes Clubhouse, should be installed. For fire apparatus committee recommended Ford chassis upon which could be mounted body suitable to carry 12 3-gal. extinguishers, 6 8-lb. pickaxes, 2 6-ft. plaster hooks, 400 ft. of hose, hose pipes, 4 lanterns, 4 automatic rubber respirators and a 20-ft. extension ladder. Mountain Lakes now has tower bell, to which number of residents have keys. Total cost of fire alarm system and apparatus, committee estimated, will be \$1,250.

**Roselle, N. J.**—Fire Committee has reported that new fire company, Hose Co. No. 2, had organized and recommended that Council furnish members a hose cart, 500 ft. of hose and other essentials.

**Binghamton, N. Y.**—Bids have been opened on signal system apparatus to be installed in new Central Fire station, but action was deferred. Fire alarm apparatus bids were: Gamewell Fire Alarm Co., \$9,875; Star Electric Co., \$8,912.

**Lansingburg, N. Y.**—Installation of alarm system and purchase of apparatus is being considered. (P. O. Trov.)

**Mount Kisco, N. Y.**—It is said that the Mutual Engine Co. is in market for motor apparatus.

**Dayton, O.**—John McIntyre, Algonquin Hotel, Dayton, is in the market for a simple and effective fire alarm system for a munition plant.

**Dayton, O.**—Citizens may shortly be called upon to vote on bond issue for motorization of fire department. Frank B. Ramby is Chief.

**Lima, O.**—Council has ordered submission in fall election of \$34,000 bond issue for two new fire stations, one in South Lima, south of C. and E. Railroad tracks, other in East Lima.

**Niles, O.**—Installation of fire alarm system is being planned.



**Columbia, Pa.**—Funds are being raised by the Keystone Truck & Chemical Engine Co. for purchase of motor apparatus.

**Coopersburg, Pa.**—Borough will vote November 2 on question of issuing town hall and fire house bonds in sum of \$9,000.

**Lewistown, Pa.**—A special meeting of Henderson fire company has been held to consider question of buying new and up-to-date auto truck for the company. The auto truck now in use by the company is to be replaced by a larger and more modern truck. Committees were appointed for purpose of raising funds for new truck and to look after other details pertaining to purchase of new equipment for the company. At present time no less than five local fire organizations are each contemplating purchase of new auto trucks. Just how many of five companies will succeed in raising money to buy trucks remains to be seen. The companies which have purchase of trucks under deep consideration are: The Henderson, the Fame, the Brooklyn, the Lewistown Junction and the Newtown.

**Moorestown, Pa.**—Purchase of motor combination chemical and hose wagon is contemplated by Fire Commissioners.

**Northampton, Pa.**—Council has voted in favor of purchasing motor apparatus for Northampton Fire Company.

**Sunbury, Pa.**—Fire chief has recommended purchase of 800 ft. of hose.

**Providence, R. I.**—Question of appropriating funds for purchase of additional motor apparatus is being discussed. R. D. Weeks is Chief.

**Woonsocket, R. I.**—Purchase of pulmotor for fire department is urged.

**Temple, Tex.**—City Attorney N. P. Woodward is in Austin to meet Attorney-General Looney for purpose of getting approval of attorney-general's department on \$40,000 fire bonds recently issued by city of Temple. The bonds arrived a few days ago from purchaser and are now ready to be approved.

**Petersburg, Va.**—Council is discussing purchase of motor apparatus.

**Petersburg, Va.**—Appropriation has been allowed for purchase of motor triple combination wagon.

**Madison Rock, Wis.**—Installation of alarm system is under consideration.

**Prescott, Wis.**—Installation of electric alarm system is urged.

**Racine, Wis.**—Purchase of motor ladder truck is being discussed. James Cape is Chief.

**Niagara Falls, Ont., Can.**—Stamford council has decided to install fire alarm system in connection with city system. At present time Stamford has no fire department, and city firemen at south end hall respond to all alarms in township.

#### CONTRACTS AWARDED.

**Lodi, Cal.**—To Bowers Rubber Works, San Francisco, Cal., for 1,000 ft. of hose.

**Muscatine, Ia.**—Following committee of whole session of City Council and immediate adjournment of City Council, Alderman Leonard Bowen, chairman of fire committee of Muscatine City Council, has announced selection made by that committee as to new motorized fire fighting apparatus to be secured by city. In committee of whole report of fire committee was received after which that body was given authority to draw up contract with International Motor Car Co. of New York for purchase of two modern trucks.

**Fairfield, La.**—To American-La France Fire Engine Co., Inc., Elmira, N. Y., for furnishing motor combination chemical and hose wagon, at \$5,500.

**Paterson, N. J.**—Question of purchase of fire hose was settled with passage of Commissioner Schielke's resolution to purchase 5,500 ft. of hose from the C. C. Co. of New York at 44.77 cents per ft. The hose will be delivered within a short time. This hose complies with all the required specifications of underwriters. It was decided to accept proposition of Robinson Mfg. Co. of St. Louis, builders of engine No. 12, in regard to making certain repairs to engine and placing it in first-class condition.

**Red Bank, N. J.**—By Union Hose Co., contract to E. R. Thomas Motor Co., Buffalo, N. Y., for furnishing 6-cylinder 70 horse-power chassis.

**Riverhead, L. I., N. Y.**—Fire Commissioners of Riverhead has signed contract to buy chemical fire engine at \$525. It is to be a handsome machine, of latest and most approved style, to meet requirements of fire insurance men.

**Piqua, O.**—To Ahrens-Fox Fire En-

gine Co., Cincinnati, O., for motor triple combination wagon, at \$9,225.

**Richmond, Va.**—To Aslop Motor Co. for Waterous motor pumping engine, and for Mack combination chemical and hose wagon and chassis.

**Racine, Wis.**—To American-La France Fire Engine Co., Inc., Elmira, N. Y., for furnishing motor city service truck.

#### BRIDGES

**Phoenix, Ariz.**—Pinal County is considering erection of two concrete bridges across Gila River near Winkelman. Estimated cost, \$30,000 each.

**Dixon, Cal.**—At joint session of Supervisors of Yolo and Solano Counties Sept. 13 at Putah Creek, it was decided to go ahead with construction of bridge across creek, on line where west side State highway passes from Yolo into Solano County. Recently the Yolo Board decided to build. Structure, which will cost \$30,500, will unite two units of the State highway system in Yolo and Solano Counties.

**Fairfield, Cal.**—At joint session of supervisors of Yolo and Solano Counties it was decided to proceed with construction of inter-county bridge across Putah Creek, on line of the State Highway. The structure will cost \$305,000.

**San Jose, Cal.**—County surveyor is directed to prepare plans and specifications for reinforced concrete bridge on Payne Ave. over San Tomas Aquino Creek in county of Santa Clara, Cal. Also to prepare plans and specifications for one concrete culvert on Scott Lane, two concrete culverts on Kifer road; two concrete culverts on Coffin road; four concrete culverts on Mt. View and Alviso road.

**Columbus, Kan.**—The Commissioners of Cherokee County have decided to spend \$8,000 in repairing of bridges this fall.

**Leavenworth, Kan.**—County Engineer Walter Thomas has spent past week revising his first estimates for 27 bridges which County Commissioners named to be built this fall. Estimate for entire number in first class is placed at \$35,000 by county engineer and this is only part of amount which will necessarily have to be spent within next few years on 59 bridges which were damaged by last spring rains.

**Salina, Kan.**—A new 18 ft. span will be added to Ohio St. bridge.

**Duluth, Minn.**—Commissioners will order construction of bridge at intersection of Columbus Ave. and Hardy St., and extension of sewer mains involving total expenditure of approximately \$2,500.

**New Brunswick, N. J.**—Eight banking companies were represented Sept. 20 when Board of Freeholders opened bids for \$69,000 bond issue to pay for cost of new bridge over the Causeway on South River-Sayreville Rd. Entire issue was sold to Farson Son & Co., of New York City, for \$69,952, which means that Middlesex County will receive \$952 more than is called for by bond issue.

**New Brunswick, N. J.**—The Middlesex Board of Freeholders on Sept. 20 accepted bid of Parson, Son & Co. for purchase of \$69,000 worth of convertible bridge bonds, proceeds of which will be used to build new bridge over South River between South River and Sayreville. The bid was \$101.38.

**Paterson, N. J.**—At meeting of road committee of Board of Chosen Freeholders, Freeholder Joseph MacDonald has recommended that County Engineer Garwood Ferguson be authorized to advertise for bids for construction of new bridge over Passaic River on Newark and Compton Turnpike, to cost \$40,000, present structure to be used until new bridge has been built. Two plans were submitted, one for steel and the other for a concrete structure.

**East Syracuse, N. Y.**—On account of recent storms in town of Dewitt taxpayers must expend nearly \$4,000 for repairs and rebuilding of bridges in vicinity of Jamesville. The bridge at Kinne road in that village was swept away and Seneca St. bridge was badly damaged.

**Monticello, N. Y.**—Sum of \$2,500 has been voted for repairing of historic covered bridge at Bridgeville.

**Schenectady, N. Y.**—At meeting of the Town Board of Princetown the town superintendent of highways was authorized to construct Muselbeck bridge over Sandesee Kill at expense of \$600 and to repair Lanehart bridge over Normanskill at total expense of \$750. He was also authorized to make temporary repairs to Gordon road and to bridge crossing

Sandesee Kill. For above appropriation and for following purposes: \$450 for Kelley bridge and \$700 for the Tiddall bridge, bond issue of \$2,500 was authorized.

**Cincinnati, O.**—Ordinance has been adopted providing for issue of bonds in sum of \$17,000 for purpose of providing funds to pay cost and expenses of improving Montgomery road by widening existing masonry arch bridge over the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad.

**Cincinnati, O.**—Seven bids for concrete bridge on New Haven and Venice road, estimated to cost \$1,937, were received and referred for computation; also five bids for retaining wall and other improvements on Four-Mile road at Seaman's place, estimated to cost \$2,327.

**Middletown, Pa.**—Erection of bridge over tracks of Pennsylvania Railroad at W. Ann St. has been ordered.

**Knoxville, Tenn.**—Contract has been entered into by Mayor and Commissioners of Knoxville with Mayor and Board of Aldermen of Park City for erection of viaduct on Jackson Ave., across Third Creek, at intersecting point of two corporations. It is embodied in contract that city of Knoxville shall pay \$1,010.75 and Park City shall pay \$1,510.75 for erection of viaduct.

**Corpus Christi, Tex.**—Aransas Co. by vote of 195 to 9 has authorized issuance of \$300,000 bonds for construction for Rockport-Lamar Causeway connecting those two coast towns. The causeway is to be 13,000 ft. long, directly across Aransas Bay, and will be longest bridge in Texas.

**Waco, Tex.**—See "Sewerage."

#### CONTRACTS AWARDED.

**Sonoma, Cal.**—Contract for construction of concrete bridge over Woods Creek, on new state highway, just below Jamestown, has been awarded by Tuolumne County supervisors to W. A. Stratton, of Richmond. His bid was \$4,060—\$3,994 for the new bridge and \$66 for removing the old one.

**Melbourne, Fla.**—Contract has been let for concrete bridge to be constructed across Crane Creek, the Champion Bridge Co. being successful bidders.

**Ottawa, Ill.**—Bids received Sept. 20 for bridges were as follows: Oscar Quinn—Barnes, \$994; Buckley, \$718; Grove, \$789; Furr, \$725; Ericson, \$750; Ulrich, \$875; Zellers, \$1,900; Retz, \$875. Glasgow-McCann—Barnes, \$1,012; Buckley, \$736; Grove, \$822; Furr, \$740; Ericson, \$736; Ulrich, \$837; Zellers, \$1,839; Retz, \$827. I. L. Woodward—Barnes, \$1,040; Buckley, \$850; Grove, \$800; Furr, \$760; Ericson, \$800; Ulrich, \$840; Zellers, \$1,850; Retz, \$850. Oscar Quinn was awarded contract for Barnes, Buckley, Graves and Furr bridges. Glasgow-McCann Co. was awarded contract for Ericson, Ulrich and Retz bridges. I. L. Woodward, representing the Decatur Bridge Co., was high bidder in each case.

**New Brunswick, N. J.**—Contract for erection of bridge over Millstone Brook, near this city, was awarded to John W. Erickson and James Morrell, the lowest bidders, for \$1,985.50.

**Youngstown, O.**—City Board of Control has awarded contract for steel work for Fredericksburg Rd. bridge at Milton reservoir and for moving and erecting of Carson bridge at Shilling's Mills to Massillon Bridge & Structural Co. Amount of this contract is \$11,333.50. L. I. Fletcher was given contract for 1,500 cu. yds. fill at Milton for \$465. J. P. Morrison & Co., low bidders, were awarded job of grading Mabel St. from Gibson to Homestead for \$4,097.

**Knoxville, Tenn.**—Ratification of contract with city of Knoxville for viaduct on E. Jackson Ave., across First Creek, at dividing line of Park City and city of Knoxville, was made at special meeting of Park City Council. In contract it is provided that municipality of Park City shall pay \$1,510.75 towards construction of viaduct and city of Knoxville shall pay \$1,010.75.

**Wheeling, W. Va.**—At meeting of Board of County Commissioners contract for building of two concrete bridges in this county was let to Chatterton & Bradley Co., of Slaterville. One will replace old Lewis bridge wrecked near West Alexander, and other will be erected on Middle Wheeling Creek Rd. Other bidders were Luten Bridge Co.; Farris Bridge Co.; C. B. Kimberly, and Vincent Vercelotti.

## MISCELLANEOUS

**Birmingham, Ala.**—Bids received for removal of garbage are being considered.

**Miami, Ariz.**—Walter Nash, chairman of Board of Supervisors of Gila County, has notified Clerk Gates that special meeting of board would be held within next few days to determine conditions of new \$500,000 bond issue.

**St. Andrews, Fla.**—Bond election has been held to vote on issuing of \$24,000 of five per cent. bonds for public improvements. It was carried with very large majority.

**Augusta, Ga.**—Bids will be received by Finance Committee until 12 noon, Oct. 6, for purchase of \$250,000 Flood Protection bonds. Wm. Martin is chairman.

**Peoria, Ill.**—City Council is planning to purchase auto ambulance for police department.

**Indianapolis, Ind.**—Board of Public Works has decided to raise old levee along Fall Creek from Indiana Ave. to 16th St. to sufficient height to assure against stream again overflowing its banks. It is probable that work will be done by city forces, as estimated cost is only \$2,400.

**Salina, Kan.**—Salina voters will have chance to decide park and playground question. Council has voted unanimously to submit question to election Nov. 2. Bonds to amount of \$40,000 or such smaller amount as may be necessary are proposed. The proposed plots are same as suggested before—one near union station on 12th, one in the Morrison addition, one on East Crawford, one east of new concrete bridge and one in Riverside Park addition.

**Louisville, Ky.**—Increased funds for maintenance and extension of Louisville's park system is object of general movement proposed by Fred Levy to Board of Park Commissioners. Board adopted plan submitted by Olmstead Bros., park engineers, for laying out proposed new Clifton Park on Coral Ave., between Frankfort Ave. and Brownsboro Rd. It also ordered taking of bids, on motion of Mr. Brumleve and Basil Doerhoefer, for grading and reconstruction of Western Parkway from Market St. to northern boundary of Shawnee Park and from Broadway to Greenwood Ave. and of the roadway from the northern entrance of Shawnee Park to connect with the concourse west of the baseball shelter house. The work is to be completed not later than Nov. 1.

**Boston, Mass.**—Six proposals for excavating Charles River Channel from Elm St. to Bleachery Dam, in Waltham, were opened in the office of the Metropolitan Park Commission, 14 Beacon St., at noon, Sept. 21. Amount of work to be done will be about 15,000 cu. yds. Contract probably will be awarded at meeting of the commissioners Sept. 22. The bidders and amounts were as follows, per cubic yard: John R. Burks, 94c.; Eastern Dredging Co., 94 1/4-100c.; John P. Cavanagh Co., 97c.; Bay State Dredging & Contracting Co., 97 1/2-10c.; Coleman Bros., \$1; William L. Miller Co., \$1.34.

**Waltham, Mass.**—Mayor has suggested that board consider purchase of auto police patrol and ambulance at cost not to exceed \$3,000.

**Ishpeming, Mich.**—City is planning to install incinerating plant to cost \$6,000.

**Duluth, Minn.**—Sewer, gas and water extensions involving about \$15,000 will be passed upon, to come up for consideration at regular meeting of City Council.

**Ely, Minn.**—On Oct. 12 city will hold special election for purpose of voting on bond issue. Owing to fact that city has made numerous improvements at light and water plant and steel water tower and cement sidewalks it has become necessary to issue bonds in sum of \$40,000.

**Jefferson City, Mo.**—Election will be held Oct. 19, 1915, for voting on bond issue of \$25,000 for erection of new jail and \$25,000 for tuberculosis hospital. C. A. Dirckx is Clerk of County Court.

**St. Joseph, Mo.**—Not one of eleven city bond propositions, totaling \$1,048,000, submitted to the voters of St. Joseph Sept. 21 received the necessary two-thirds majority to be legally adopted.

**Billings, Mont.**—A meeting of stockholders of Big Ditch Co. will be held in this city Oct. 2 to vote on appropriation of \$7,500 for extensive improvements on

ditch near Schaurer Ranch, west of Laurel.

**Atlantic City, N. J.**—The Farmers' Produce & Supply Co. has offered bid of \$195,000 for collection and disposal of city garbage for next 5 years. Only other bid was that of the Atlantic Products Co. at \$299,500, the present contractors. Bids were referred to Director Bacharach.

**Newark, N. J.**—Board has authorized call for bids for collecting garbage for 5 years from January 1 next, to be received Oct. 21, in accordance with specifications agreed upon.

**New Brunswick, N. J.**—City Commissioners will shortly receive bids for body of combination patrol and ambulance wagon.

**Nutley, N. J.**—Board of Health is considering garbage disposal plant.

**Nutley, N. J.**—Police Department will have auto patrol. Town Commission has passed resolution directing town clerk to advertise for bids. Estimated cost, \$875.

**Paterson, N. J.**—Five new motorcycles will be secured for Police Department. Commissioner Frost introduced resolution for purchase of machines of 1916 model for \$540. This special price is obtained through return of present five machines in department and repurchase of two of old ones at \$125 apiece. Two of best will be selected, and this will increase number of motorcycles in department from five to seven.

**Perth Amboy, N. J.**—Park bonds in sum of \$38,000 will shortly be sold.

**Spring Lake, N. J.**—Councilman Knight has suggested that borough buy its own garbage wagons for coming year. He said that present wagons were unfit for use. Superintendent Edward White will be asked to secure specifications for these wagons and present them to council.

**Dunkirk, N. Y.**—It is probable that matter of advertising for bids for collection of garbage in city of Dunkirk will be taken up by common council at its next regular meeting. J. A. Gostomski has contract now and this expires on Oct. 15.

**Dunkirk, N. Y.**—Purchase of lungmotor may shortly be consummated.

**Hornell, N. Y.**—State Department of Public Works has advertised for bids for contract for improvement of Canisteo River called for under appropriation of \$45,000 which was made available by last state Legislature. Specifications call for practically all work in city of Hornell recommended by Board of Public Works and Mayor F. J. Nelson and include extension of concrete retaining wall along west bank of Canisteo River from point where present wall leaves off near end of Elm St. to River St. bridge and 150 ft. beyond.

**Rochester, N. Y.**—New York Bureau Municipal Research is urging municipal ownership of garbage disposal plant.

**Rocky Mount, N. C.**—Bond issue of \$35,000 has been sold to Planters National Bank of Rocky Mount.

**Wilson, N. C.**—Consulting Engineer Anderson is busily engaged in drafting plans for municipal improvements. Prior to grading and paving of streets, the gas pipes will be laid and all telegraph, telephone and electric light wires in the business district will be removed. City will put electric light wires underground and telephone and telegraph companies will have option of moving wires to alleys or placing them underground. In meantime plans are being drawn for municipal gas plant and new water system. Total expenditure for municipal improvements will go beyond \$750,000, including amounts to be paid by property owners on streets and sidewalks. The work will occupy the next two years.

**Columbus, O.**—Ordinance has been passed appropriating \$24,000 for erection of two comfort stations in Statehouse yard, contracts for which already had been let.

**Springfield, O.**—Ordinance has been adopted to provide for issue of bonds in sum of \$13,500 to pay cost and expense of widening, cleaning, straightening, constructing retaining walls and concrete flooring in Mill Run, a natural water course passing through corporation, from its outlet to East St.

**Lonsdale, Tenn.**—Ordinance calling election for Oct. 30, to vote on \$30,000 bond issue, was passed on first reading at

special meeting of Lonsdale Council. Amount of bond issue was raised from \$15,000 to \$30,000, but only \$15,000 will be raised in near future and remaining \$15,000 to be used when additional expenditure is needed.

**Fort Worth, Tex.**—With proposition to lease 250 acres of city land as part of big park project to improve Lake Worth, City Commission will be called upon to consider entirely different proposition for construction of a \$125,000 boulevard around the lake.

**Houston, Tex.**—E. E. Sands, City Engr., will receive bids until Oct. 8 for installing garbage incinerators, destructors or for plants that will otherwise dispose of garbage.

## CONTRACTS AWARDED.

**Miami, Ariz.**—Eight bids for collection and disposal of garbage have been opened, bids ranging all of way from \$5,400 to \$3,000 per year. Contract was finally awarded to John Smithson, the lowest bidder.

**San Jose, Cal.**—Ordinance awarding contract for construction of the Canoas Creek by-pass to M. E. Kilcourse for sum of \$10,230 has been given second reading and adopted.

**Americus, Ga.**—To Nye Odorless Crematory Co., Macon, Ga., for constructing incinerating plant at cost of \$3,500.

**Bardwell, Ky.**—The Fiscal Court of Carlisle County let contracts on Sept. 20 for construction of new jail. Building will be erected by X. B. Wickersham, of Mayfield, Ky., and cells and all iron work was awarded to Van Dorn Iron Works Co., Cleveland, O. The contract price is \$12,500.

**Hattiesburg, Miss.**—To White Co., of Cleveland, O., contract by County Board of Supervisors to supply 60 horse-power 6-cylinder road tractor machine.

**Gloucester City, N. J.**—For cleaning city streets, garbage collection and sprinkling for one year as follows: District No. 1, Thomas O'Brien, \$223 per month; District No. 2, Charles H. Eastlake, \$180 per month.

**Spring Lake, N. J.**—Construction of 3 new jetties at foot of Mercer and Sussex Aves. was awarded to Coney and Smith, of Atlantic City, by borough council Sept. 20. Their bid was \$9.80 a running ft. Each jetty will, when completed, be 200 ft. in length.

**Ventnor, N. J.**—Ventnor City Council on Sept. 20 awarded contract for erection of another catch basin jetty to be placed off end of Cornwall Ave. There were eight bidders, lowest giving estimated cost of \$4.35 per lineal foot and highest bidding \$6.50 per lineal foot. Contract was awarded to the E. J. Holland Construction Co., of this city, at price specified in the low bid. Work will be started at once.

**Albany, N. Y.**—Kenny & Dumary, contractors, were awarded contract Sept. 20 for completion of Sheridan Park. Their bid was in excess of the \$3,000 appropriation, but reduction in amount was made to conform to appropriation.

**White Plains, N. Y.**—The Westchester County building commission has signed contract with John T. Brady Co. for the construction of new court house. The Brady Co.'s bid was \$494,740.

**Newark, O.**—Safety Director Dayton has recommended purchase of light automobile truck for use of Hydrant Repairman Larason.

**Beckley, W. Va.**—By Raleigh County, to D. J. Phillips, Roanoke, Va., for erection of jail and sheriff's residence, at \$40,000.

**Sheboygan, Wis.**—Franz Radloff was lowest bidder on work of building retaining wall on lower Falls Road and will be awarded contract. John Theune was only other bidder. For work of building reinforced concrete retaining wall and making necessary excavations, Contractor Radloff bid \$8 per cu. ft. and for concrete paving, including a 24-in. gutter and expansion joints, he bid \$1.25 per cu. ft. Contractor Theune's bids were \$12 and \$1.50 respectively for same work.

**Sheboygan, Wis.**—Common Council has concluded busy session by adopting ordinance by Alderman Fred Haack authorizing Board of Public Works to enter into contract with Immel Construction Co., of Fond du Lac, for construction of new city hall, at \$74,584.



TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS</b>				
Pa.	Mt. Union	6 p.m., Oct.	4..Paving several streets with vit. brick and concrete; also 7,500 ft. curbing	D. W. Dillman, Boro. Engr., 47 Altoona Tr. Bldg., Altoona.
Ind.	Ft. Wayne	Oct.	4..Improving boulevard	Park Commissioners.
Md.	Hagerstown	Noon, Oct.	5..About three miles highway	State Roads Com., Baltimore.
S. D.	Clear Lake	2 p.m., Oct.	5..Grading	J. M. Wold, Co. Aud.
Cal.	Sacramento	11 a.m., Oct.	5..Grading and asphalt paving on concrete foundation	Supt. of Streets.
Mont.	Missoula	10 a.m., Oct.	6..Paving with vit. brick on 5-in. base, creosote wood block of 5-in. base, standard bitulithic on 5-in. base or asphaltic concrete on 5-in. concrete base	E. S. Hathaway.
Minn.	St. Paul	10.30 a.m., Oct.	11..Grading and improving	A. Hohenstein, Pur. Agt.
N. J.	New Brunswick	Oct.	18..Street repairs	Alvin E. Fox, Co. Engr., Perth Amboy.
Tex.	Terrell	2 p.m., Oct.	28..Gravel macadam roads	M. W. Raley, Sec. Rd. Comrs., First Nat. Bank.
<b>SEWERAGE</b>				
S. D.	Bridgewater	8 p.m., Oct.	4..Storm water and sanitary sewers	C. J. McMahon, City Clk.
Utah	Salt Lake	10 a.m., Oct.	5..Sewer extension	Earl A. Schied, City Rec.
N. D.	Fargo	10 a.m., Oct.	6..12-inch lateral sewer	A. R. Watkins, City Aud.
Neb.	Lincoln	3 p.m., Oct.	7..1,074 ft. reinforced concrete conduit	T. H. Berg, City Clk.
Minn.	St. Paul	10.30 a.m., Oct.	11..Sewer construction	A. Hohenstein, Pur. Agt.
la.	Denison	7.30 p.m., Oct.	12..Sanitary sewers	E. F. Tucker, City Clk.
Wis.	Ashland	9 a.m., Oct.	14..8-inch sewers, manholes and appurtenances	C. J. Wadak, City Engr.
<b>WATER SUPPLY</b>				
Minn.	Sleepy Eye	Oct.	5..Extension of mains	City Recorder.
Ind.	Shelbyville	5 p.m., Oct.	5..Two 8-in. chart automatic pressure-recording water gauges	W. S. Jones, City Clk.
Tex.	Galveston	Noon, Oct.	7..Cast-iron pipe and fittings	Board of City Comrs.
Tex.	Galveston	Noon, Oct.	14..3,600 ft. 30-in. submerged cast-iron water mains	Board of City Comrs.
<b>FIRE EQUIPMENT.</b>				
Pa.	Northampton	7.30 p.m., Oct.	1..Combination pumping engine, chemical and hose car	H. T. Bilheimer, Sec. Town Council.
Minn.	Sleepy Eye	Oct.	5..500 ft. 2½-in. cotton rubber-lined hose	City Recorder.
<b>BRIDGES</b>				
Mont.	Big Timber	10 a.m., Oct.	4..Three bridges	J. E. Cameron, Sweet Grass Co. Clk.
Ill.	Kangley	2 p.m., Oct.	4..Bridge with concrete abutment	N. K. Craft, Town Clk.
Mont.	Hamilton	2.30 p.m., Oct.	4..Six reinforced concrete bridges	F. E. Robbins, Clk. Raville Co.
Ill.	Quincy	2 p.m., Oct.	5..Bridge construction	Supt. of Highways.
Minn.	Springfield	1 p.m., Oct.	9..Steel and concrete bridge	Chas. L. Palmer, Co. Com.
<b>MISCELLANEOUS</b>				
Mass.	Beverly	7 p.m., Oct.	5..Sea wall with concrete foundation	City Engineer.

STREETS AND ROADS

**Phoenix, Ariz.**—Ordinance providing for advertising for bids for paving of Madison St. from Third St. to Third Ave., with bitulithic paving, has been adopted. Plans and specifications for paving of Jefferson st. from Eleventh Ave. to Nineteenth Ave.; First St. Adams to Culver; Monroe St. from Seventh St. to Seventh Ave.; Second St. from Adams to Monroe; Third, Fourth, Fifth and Sixth Aves. from Adams to Monroe, and Central Ave. from Yavapai to Harrison St., have been presented and approved. City Engineer J. B. Girard stated that plans and specifications for large amount of additional paving were nearly ready for presentation to commission. When bids are asked for this paving it is likely that several classes of paving will be specified.

**San Jose, Cal.**—City Engineer Maggini has filed plans and specifications for improvements of city and state portions of streets around normal square from center line between curbs up to curb on normal school side of street. The plans and specifications were adopted by motion.

**Santa Clara, Cal.**—About 200 names have already been signed to chamber of commerce petition requesting special bond election for permanent improvement of main roads leading into Santa Clara, including state highway. A number of most prominent taxpayers and voters have endorsed the proposition.

**Woodland, Cal.**—The Woodland Trustees, at their mid-monthly meeting have adopted plans and specifications for pavement on East St. from Main to Beamer and passed resolutions of intention to pave.

**Washington, D. C.**—Largest suburban street improvement schedule ever carried in District budget is expected to be included in next annual estimates

now being prepared by Commissioners. As compared with appropriation of approximately \$180,000 for suburban streets carried in current appropriation act, next budget will call for \$300,000 to be spent on thoroughfares in outlying sections, according to present plan of Commissioners. Biggest portion of this amount will go for streets in northeast and southeast sections. Commissioners also practically have determined to ask for big park in northeast section of city.

**Canton, Ill.**—For construction of 5,500 sq. yds. concrete pavement, two lowest bidders were: Carpenter Const. Co., Cleveland, Ind., at \$7,142, and Moore & Sutton, Canton, Ill., at \$7,148.

**Indianapolis, Ind.**—Board of Park Commissioners have ordered preparation of plans for completion of Burdial parkway, from Fall creek to Riverside park. The parkway was formerly known as Twenty-fourth St.

**Topeka, Kan.**—County commissioners expect shortly to take final action on question of paving West Tenth street road west from Washburn Ave. for two miles with asphaltic macadam.

**Lexington, Ky.**—One hundred and seventy-five dollars have been contributed to date to defray expenses of campaign now being waged in favor of \$300,000 bond issue with which to construct and reconstruct roads of Fayette County, which proposition will be voted on at special election next Thursday, September 30.

**Somerset, Ky.**—Petitions signed by over 2,000 voters asking for special election to vote upon issue of \$300,000 in bonds for good roads in Pulaski county have just been gone over by County Court. That body has fixed Saturday, December 18, as date for special election. Despite the fact that Pulaski county has on two previous occasions voted against road bond issues, it seems

universally understood over county that there will be practically no opposition to issue now, and county will not only bond itself for \$300,000 to secure better highways, but will also receive like amount from State in event issue is favorably voted upon.

**Duluth, Minn.**—Asphalt surfacing of brick pavement on Superior St., from Eighth Ave. east to Eight Ave. west, is planned by Commissioner Farrell, read of works division. Commissioner was authorized by council to purchase fifty tons of asphalt to be used by local contractors, and he is arranging to make test with material on stretch of pavement near city hall. If substance can withstand heavy wear and keep firm binder on brick, it will be laid on entire Superior St. pavement.

**Gulfport, Miss.**—Bond issue is being discussed for completion of Biloxi-Gulfport road.

**Missoula, Mont.**—Bids will be received until 10 a. m., Oct. 6, for furnishing all tools, labor, material and appliances necessary for construction of pavement to be of vitrified brick, on a 5-in. concrete base, creosoted wood block, on a 5-in. concrete base, standard bitulithic on a 5-in. concrete base or asphaltic concrete on a 5-in. concrete base in Special Imp. District No. 41, West Pine St. Total area of pavement 2,400 sq. yds. L. E. Harris is City Clerk and E. S. Hathaway is City Engineer.

**Perth Amboy, N. J.**—Ordinance has been adopted to pave Gordon St. with asphalt blocks and granite blocks, and to pave Convery Place with asphalt block or other suitable material and granite blocks.

**Perth Amboy, N. J.**—Bonds in sum of \$138,000 for street improvements will be advertised for sale shortly.

**Syracuse, N. Y.**—Common Council will be asked to take action by which it will be possible for State Department of High-

ways to award contracts this year for highway work which will provide for paving wider strip than is permissible in construction of state roads inside the city. Cortland Ave. is to be improved as county highway at joint expense to city and county from the pavement at Englewood Ave. south.

**Winston-Salem, N. C.**—Committee has been authorized to purchase auto truck for street department at cost of about \$4,000.

**Cincinnati, O.**—Ordinances have been adopted for improvement of various streets.

**Toledo, O.**—Ordinances have been adopted for improvement of various streets.

**South Bethlehem, Pa.**—Ordinance has been passed for laying out, adopting and opening of Poplar St. and Julien St. in Boro. of South Bethlehem, Northampton County, Pa., connecting Third and School Sts. and lying between Linden and Oak Sts. Thomas Ganey is Boro. Secretary.

**Elizabethton, Tenn.**—The \$365,000 bond issue for roads in Carter County has been sold, and work on roads will soon begin. Engineering force under J. H. Caldwell, engineer in charge, has been quite busy surveying out routes for new roads, and they will be pushed to completion.

**Greenville, Tenn.**—The \$55,000 6 per cent. street improvement bonds of Greenville have been sold to W. W. Willis & Co., of Knoxville, price being par and accrued interest. Bonds have been approved by attorneys for purchasers, and money will be available at once. It will be used for paving five of principal streets with asphalt paving, work having already been started on Main St.

**Portsmouth, Va.**—Without a dissenting vote Board of Aldermen has adopted the ordinance appropriating \$4,800 for purchase of toll roads and bridges within city limits with exception of Campostella bridge.

**Victoria, B. C., Can.**—The Saanich municipality of Victoria has decided to lay about mile of modern paving on Gorge road and Douglas St. Asphalt will most likely be used. Address all communications to Municipal Engineer, Royal Oak Post Office, Vancouver Island, British Columbia, Canada. See Bureau of Manufactures, Washington, D. C.

#### CONTRACTS AWARDED.

**Atlanta, Ill.**—John E. Bretz, paving contractor with office in the Ridgely Bank Bldg., Springfield, Ill., and at Third and Carpenter Sts., has been awarded a \$24,500 contract for paving of business district of Atlanta.

**Oelwein, Ia.**—Asphalt concrete is brand of paving let by City Council and Ford Pavement Co., of Cedar Rapids, was awarded contract at \$1.30 per sq. yd., the lowest bid. There were 3 firms bidding as follows: Ford Paving Co., Cedar Rapids—Sarcolithic, \$1.88; bitulithic, \$1.97½; asphalt concrete, Class A, \$1.30; sheet asphalt, \$1.80. Western Improvement Co., Racine, Wis.—Asphalt concrete, Class A, \$1.54; asphalt concrete, Class B, \$1.48; sheet asphalt, \$1.70. William Horrabrin, Iowa City—Sarcolithic, \$1.89½; bitulithic, \$1.98½; asphalt concrete, Class A, \$1.62; asphalt concrete, Class B, \$1.57.

**Carlisle, Ky.**—The Nicholas Fiscal Court has let contract for two more roads in Nicholas County. The Carlisle and East Union road was contracted to Phelps, Post, Guyn & Co., of Lexington, and contract on Carlisle and Parks Ferry road was awarded to Games & Jones, of Louisville. The Clark County Construction Co. was contending bidder on both contracts. Former road will cost about \$20,000 and latter about \$15,000.

**Grand Island, Neb.**—For paving of two blocks district on South Pine and West First Sts. to Ray Kingsbury at \$1.98 per yard and 32c. per foot for curbing, and alley district from Locust to Wheeler, to C. A. Prince at \$1.35.

**Newburgh, N. Y.**—City Council has awarded contract for paving of Mill St. from South William St. to Quasaick bridge to Abner M. Harper for \$4,140.30.

**Salem, O.**—Six bids have been received for construction of improved highway on Leetonia-Washingtonville road at Leetonia, and of five different kinds of material bid on, the bids on the 10 and 14 ft. brick paving were the only ones below estimate. The water bound macadam, concrete, glutrin were all considerably above the average. W. P. Connelly & Son, of Youngstown, were low bidders on the 10 and 14 ft. brick paving. Their bid

on the 10 ft. paving was \$9,754.48 and the estimated cost of the road was \$13,732.24; on the 14 ft. paving the estimated cost was \$12,858.72, while the bid of Connelly was \$1,708.72. Contract for the work on this road was not awarded, but it is quite likely bid will go to Connelly & Son, of Youngstown.

**Gaffney, S. C.**—City Council on Sept. 24 awarded contract for paving Limestone St. from Robertson St. to the intersection of Birnie with Limestone. The material used will be brick and sand, and will be guaranteed for five years. Work will be commenced just as soon as construction company can get its equipment on ground, and must be completed within five weeks. The price to be paid for the work is \$1.64 the sq. yd.

**Taylor, Tex.**—After all-day session of City Commissioners and citizens' committee with numerous paving contractors on Sept. 23, contracts were awarded for paving 74 blocks, or 120,000 sq. yds., of the streets of Taylor at a cost approximating \$275,000. The successful bidders were the Uvalde Rock Asphalt Co., of San Antonio, and the Kaw Paving Co., of Topeka, Kan. The Uvalde Co. will pave the business streets and Kaw Co. the residential streets. The work to be done by Uvalde Co. will be 35,000 sq. yds. at \$1.84 per sq. yd.; the Kaw Co., 95,000 sq. yds. at \$1.30. Work is to begin immediately, or as soon as necessary ordinances governing the work are passed by the City Commissioners. The residential streets will be paved with asphaltic concrete.

#### SEWERAGE

**Perth Amboy, N. J.**—Ordinance has been adopted for extension of Neville St. sewer.

**Binghamton, N. Y.**—Notice is hereby given that Common Council of city of Binghamton, by ordinance adopted Aug. 9, 1915, declares its intention to construct a combined sewer in Phelps Ave., as follows: Sewer shall commence at a manhole to be built in east line of Prospect Ave., thence easterly in center of Phelps Ave. for distance of about 500 ft., 10 ins. inside diameter. The estimated cost of construction is \$870. D. W. Foster is City Clerk.

**Peekskill, N. Y.**—Bonds in sum of \$45,500 for sewers have been sold to Parsons Sons & Co.

**Ayden, N. C.**—Installation of sewers is being planned.

**Mount Airy, N. C.**—Installation of sewer system is being planned.

**Raeftord, N. C.**—Installation of sewers and water supply is being planned.

**Toledo, O.**—Ordinance has been adopted for construction of extension of Main Sewer No. 1139 in Main Sewer District No. 44.

#### CONTRACTS AWARDED.

**Clinton, Ia.**—To Thos. Carey & Sons, at \$34,831.85, for sanitary and storm sewers in Sewer Dist. No. 2 and at \$90,025.53, for sanitary and storm sewers in Sewer Dist. No. 3. J. G. Thorne is City Engineer, 317 Howes Bldg.

**Rochester, N. H.**—To C. W. Tass Co., Fitchburg, for constructing 8,100 ft. of sewer at \$9,163. F. E. Hussey is City Clerk.

**Brookport, N. Y.**—Contract for sewer disposal plant has been awarded to Suburban Engineering Co., 15 W. 38th St., New York City.

**Medina, O.**—By director of public service to Glen W. Hadley, Canton, O., at \$5,612, for 8,811 ft. of 8-in. sewer. W. F. Peters is City Engineer.

**Kenosha, Wis.**—Contractor James Kennedy of Fargo, N. D., was successful in drawing bid sewer contract, his bid being the lowest of a score of other competitors that were after the job. The contract is a large one, calling for more than \$250,000.

#### WATER SUPPLY

**Nevada City, Cal.**—A petition has been circulated here asking Congressman John E. Raker to use his services in securing appropriation to put in big dam on Bear River in order that hydraulic properties on Dutch Flat, You Bet, Lowell Hill, Quaker Hill, Liberty Hill and that entire section may be worked.

**Sacramento, Cal.**—A chlorination apparatus, such as in use at Sacramento, will be installed by city authorities at Antioch if recommendations of C. C. Gillespie, chief engineer of State Board of Health, are carried out.

**Covington, Ky.**—Covington City Commissioners have received report of Commissioner of Public Property J. Mason Howk relative to five bids recently submitted for submerging of emergency main under the Licking River. Cleary-White Co., of Chicago, was lowest bidder for work at \$27,360. Estimated cost was about \$38,000. While computation of the cost has been completed Commissioners made no award for work, as they first desire to obtain cost of erecting bridge across river to carry the main.

**Whippany, N. Y.**—Fifteen new hydrants will be placed in and about Whippany.

**Ayden, N. C.**—Installation of water supply is being planned.

**Raeftord, N. C.**—Installation of water supply is being planned.

#### CONTRACTS AWARDED

**Tehama, Cal.**—Contracts for pipe, for tank and for boring well for municipal water works for Tehama have been awarded by Trustees. The Sacramento Pipe Co. was given contract for supplying the pipe.

**Manchester, N. Y.**—By Village Bd. of Trustees, for system of water works, as follows: General contract, Eliven & Beals, \$23,418.63; standpipe, Tippet & Wood, \$4,696. Chas. C. Hopkins is Engr., Rochester, N. Y.

#### LIGHTING AND POWER

**Albany, N. Y.**—The up-State Public Service Commission has approved issue of \$135,000 of 5 per cent. bonds and \$66,000 of common stock of Long Island Lighting Co. to finance improvements and additions to its plant and distribution system.

**East Syracuse, N. Y.**—A proposition to change lighting system of village is being favorably discussed by Board of Trustees and Syracuse Lighting Co. Present system has been declared of inferior grade and it is proposed to use more small lights and to eliminate those of large arc type. At present there are 45 arc lamps and 26 small ones in village. Proposed plan is to put in 118 of small lamps and to discard larger ones.

**Ayden, N. C.**—Installation of lighting system is being discussed.

**Salt Lake City, Utah.**—Authority to call for bids for lights on Fifteenth South from Rio Grande tracks on west to county road on east, was given Road Supervisor by County Commission.

**Winchester, Va.**—Light committee of Common Council has been instructed to invite bids for public electric lighting for period of five years from June 1 next, on which date contract with Northern Virginia Power Co. expires. While bids are being asked for, Councilmen are discussing whether city can furnish its own lights cheaper than price now paid.

#### FIRE EQUIPMENT

**Phoenix, Ariz.**—Ordinance, providing for purchase of 1,000-gallon La France combination pump and hose wagon for \$10,000 and sale to La France Co. of horse-drawn 40-gallon chemical tank, part of equipment of old department, has been adopted.

**Turlock, Cal.**—Fire Department is asking appropriation for purchase of equipment to cost about \$16,000.

**Sullivan, Ind.**—City Council is discussing installation of fire alarm system.

**Wareham, Mass.**—Fire District may hold special meeting to vote on question of appropriating money for installation of alarm system.

**Peekskill, N. Y.**—Bonds in sum of \$12,000 for new automobile fire truck have been sold to Parsons Sons & Co.

**Salem, O.**—Bonds in sum of \$15,000 have been voted for purchase of motor apparatus.

**Oklahoma City, Okla.**—City will ask for bids on Oct. 1 for purchase of 5,000 ft. of hose.

**Williamsport, Pa.**—Council is said to be considering installation of new alarm system.

#### CONTRACTS AWARDED.

**Muscataine, Ia.**—Chairman Leonard Bowen of Fire Committee of Muscataine City Council has announced that contract for purchase of two fire trucks from International Motor Car Co. was signed Sept. 23, and that delivery of vehicles is insured within 60 days from date.